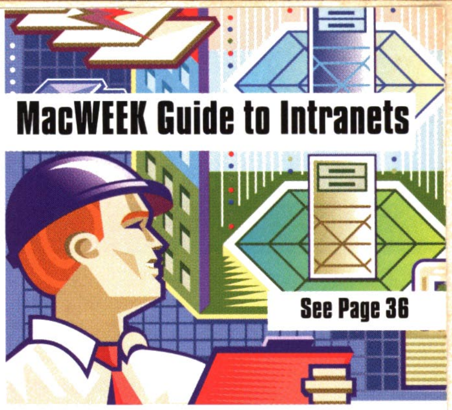
MacWEEK



08.05.96 *The Newsweekly for Macintosh Managers* VOLUME 10 NUMBER 30

ATI 5-in-1 card to deliver multimedia on a budget

By Rebecca Gulick

ATI Technologies Inc. this week will unveil a pair of products intended to woo low-budget Mac users into the high-end realm of multimedia. The rollout will center on an inexpensive multifunction accelerator board.

The Xclaim VR is a $349 4-Mbyte all-in-one board that is slated to ship in late September. It will offer 2-D and 3-D QuickDraw acceleration, QuickTime movie capture, accelerated QuickTime playback, and video-out.

The card will generate graphics in 24-bit mode at a maximum resolution of 1,152 by 870 pixels and a refresh rate of 75 Hz, ATI said. A $269 2-Mbyte version will offer a maximum full-color resolution of 832 by

See ATI, Page 140

Miro makes power play for digital video. See Page 140.

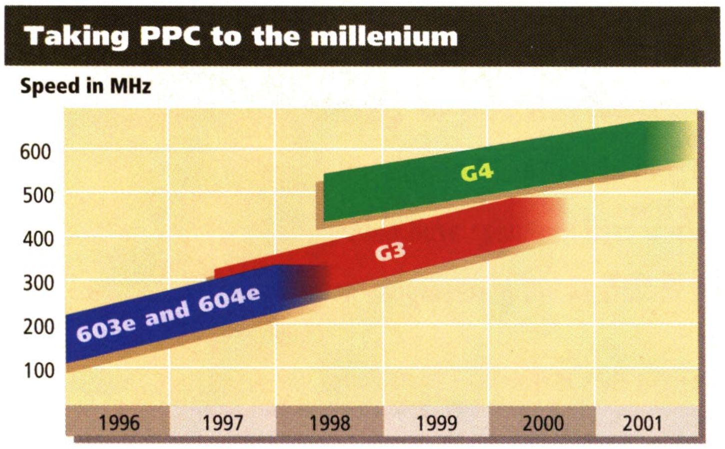
Motorola, IBM to double PPC speeds with G3 chip

By Henry Norr

The PowerPC partners this week will present a road map to the processor's future, including clues about three new chip series that will carry the architecture into the 21st century.

The plans offer preliminary details about two of the future microprocessors. One, code-named G3, should begin appearing in systems about a year from now, according to officials from Motorola Inc. of Austin, Texas, and IBM Corp.'s Microelectron-

See PowerPC, Page 144


Taking PPC to the millenium

Speed in MHz

N E W S P A P E R P E R I O D I C A L S

Express line on '97 track

New logic board at core of Apple's high-end systems

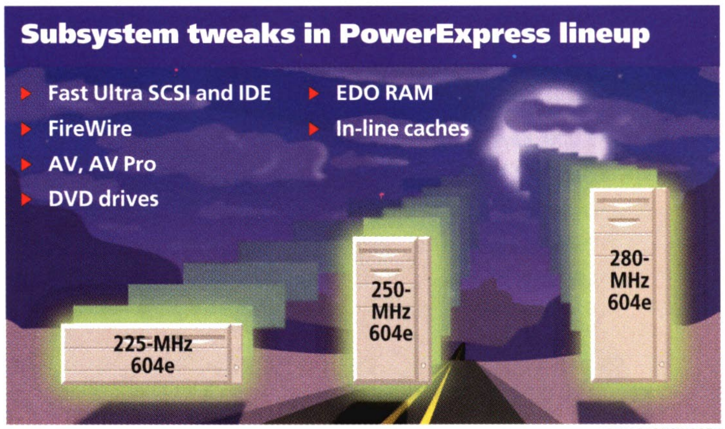
By Stephen Howard and Joanna Pearlstein

There's no rest for the wicked fast. As Apple rolls out its latest Macs this week in Boston, engineering teams in Cupertino, Calif., are reportedly working on a flagship series due in June 1997 that will highlight subsystem speed and multimedia.

Code-named PowerExpress, the upcoming high-end line of PowerPC 604e-based Macs will use one basic motherboard within three new box designs, sources said.

When released toward the middle of 1997, a low-profile three-slot PowerExpress model will hold the base-line processor of the series, reportedly a 225-MHz 604e. A midrange minitower design, code-named Stumpy, is expected to run

See PowerExpress, Page 142


Subsystem tweaks in PowerExpress lineup

- Fast Ultra SCSI and IDE
- FireWire
- AV, AV Pro
- DVD drives
- EDO RAM
- In-line caches

JOHN FARNSWORTH

TECH ANALYSIS

What's the diff? Making sense of 604e, 603e speed

By Joanna Pearlstein

The wealth of Macintosh systems being introduced at this week's Macworld Expo is a boon for customers seeking a range of offerings. But with choice comes confusion, especially over the megahertz speeds of the new PowerPC 604e and 603e processors.

"Everything in the system being equal, the 604e is about 50 percent faster than the 603e at the same speed," said David Ryan, PowerPC marketing manager for IBM Corp.'s Microelectronics Division in Essex Junction, Vt., which makes the new chips along with Motorola Inc.

The reason? The PowerPC

See Speed, Page 146

EXPO SHOW PICKS

By MacWEEK staff

This week's Macworld Expo will again demonstrate that the convention abhors a vacuum. The Boston show's two convention halls will be crammed with the new, the useful and the curious.

As the Mac cloning effort gathers steam, a welter of CPUs will claim the lion's share of Boston bandwidth. There will be plenty of third-party products for the rest of the Mac community.

"Speed" is the word for new systems making their debut at the show, as Apple and its clone partners roll out machines that break the 200-MHz mark. Apple will introduce its hopped-up Power Mac 8500/180, 9500/200 and 9500/180MP systems equipped with the PowerPC 604e processor. With the family in mind, the company will trot out the high-speed Performa 6400.

See Show picks, Page 10

CPU BLASTOFF

603e, 604e, MP fuel new Macs, clones
See Reviews, Page 73

ALSO INSIDE

In GA:
- What's happening at Siggraph
- Apple readies QuickDraw 3D 1.5

In Gateways:
- Internet-ready QuickMail
- Roaster Pro

200 MacWEEK

MACWEEK 200

Our annual survey of the top 200 Mac sites.
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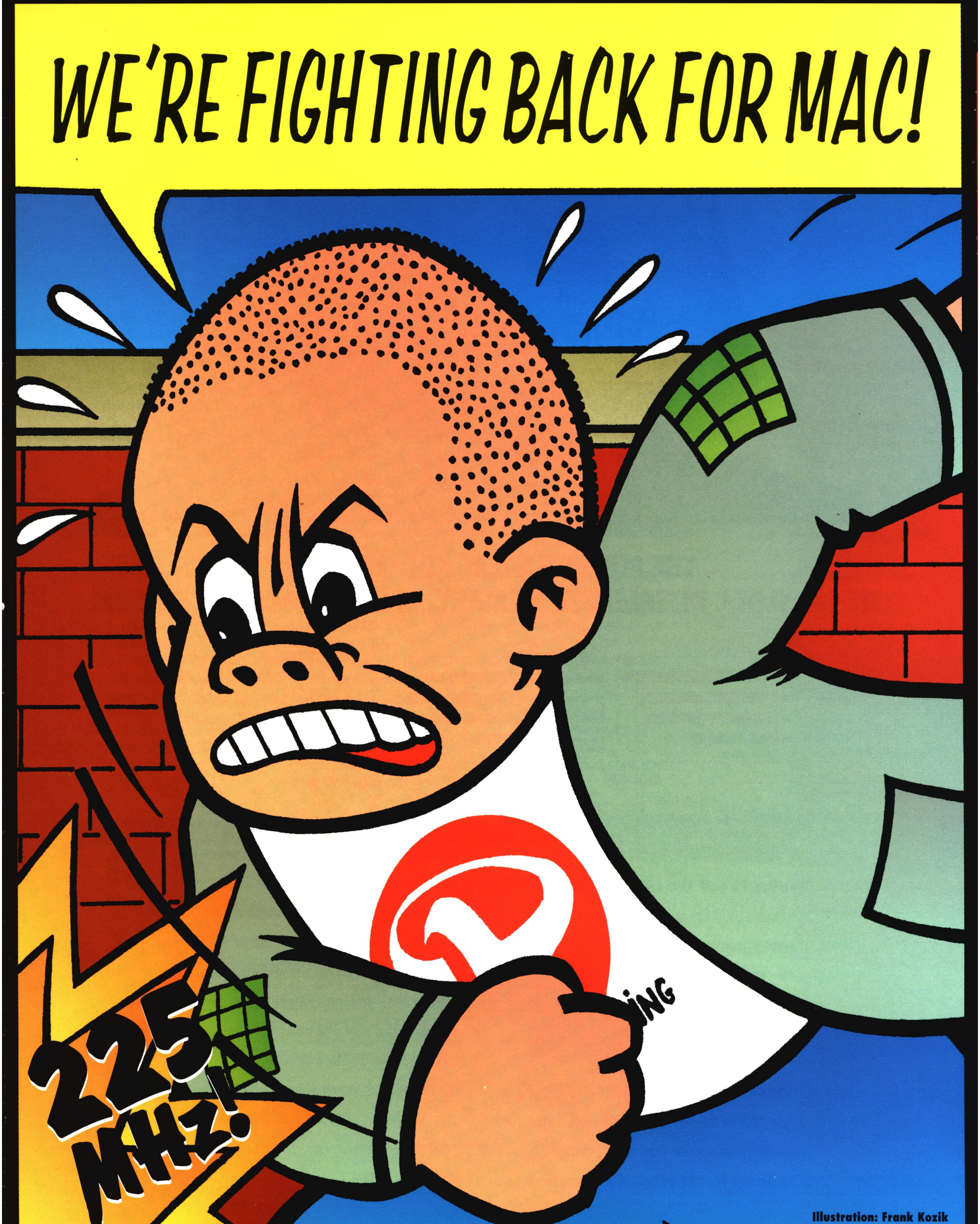
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Illustration: Frank Kozik

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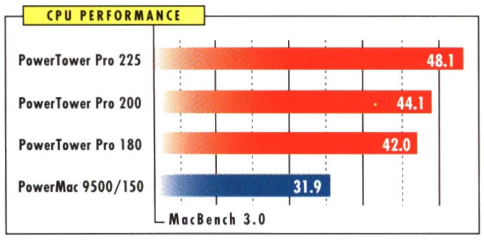

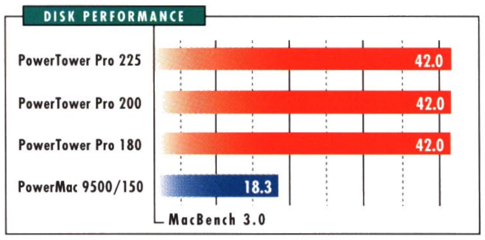

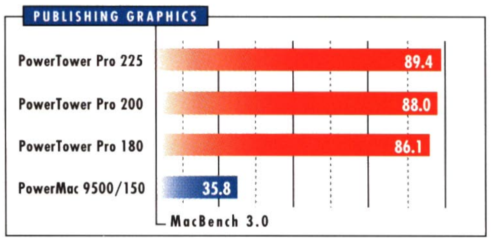

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150 MHz PowerPC 604 Processor

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08.05.96 VOLUME 10 NUMBER 30

Contents

AT DEADLINE

PB 5300cs discontinued; reseller backlog canceled

It's hard enough finding a PowerBook these days, but it will soon be darn-near impossible to get a new PowerBook 5300cs. Apple last week discontinued the model.

Apple spokeswoman Kate Paisley said the company will continue to manufacture all other PowerBook models. She said that although supplies remain constrained because of the PowerBook 5300 and 190 repair program, availability should improve in the coming months.

Although some 5300cs inventory remains in dealers' hands, reseller backlog for the product has been canceled. The move should decrease Apple's total backlog of orders, which Apple Chief Financial Officer Fred Anderson estimated in July at $100 million. □

Farallon cuts prices, offers trade-ups to Fast Ethernet

With the hope of spurring Fast Ethernet sales, Farallon Communications Inc. last week cut the price of its 100-Mbps offerings and announced a trade-in program for LocalTalk and Ethernet equipment.

The company's Fast EtherTX 10/100BASE T NuBus card was cut from $399 to $249. The Fast Starlet 100TX/8 eight-port hub is now $999, down from $1,499. Farallon's Fast Starlet 10/100 Bridge was reduced to $649 from $969. Users can purchase the Fast Starlet hub and bridge together for $1,499, a 32 percent drop from $2,199.

Users who trade in any 10-Mbps Ethernet card will get a $60 discount on a Fast EtherTX NuBus card. Those trading in any Ethernet or LocalTalk hub will get $200 toward the Fast Starlet hub and $300 knocked off the price of the Fast Starlet hub and bridge combination.

Farallon Communications Inc. of Alameda, Calif., can be reached at (510) 814-5000; fax (510) 814-5020; info@farallon.com; http://www.farallon.com. □

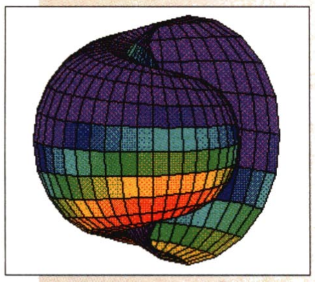
SCSI adapter now part of PaperPort Vx bundle

Visioneer Inc. last week said it will offer a SCSI adapter for its PaperPort Vx desktop scanner free to new buyers between Aug. 1 and Dec. 31.

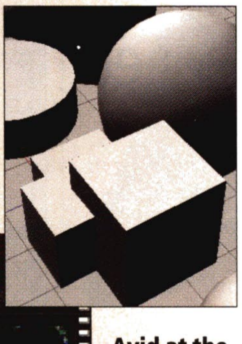
In addition, the Palo Alto, Calif., company will extend the offer to purchases made after July 1. The offer is available by mail only, and users must pay an $8 shipping charge.

The adapter normally costs $69 and can double the speed of the scanner, Visioneer said.

A coupon for the free adapter is available from Visioneer's fax-back service at (800) 505-0175. Additional information on the offer is available at (800) 787-7007. □

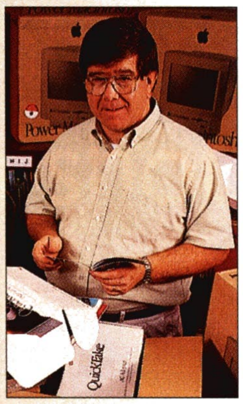


Adding it up: Math-Cad Plus 6 gets dozens of new features. See News, Page 4.



The focus is on 3-D at the Siggraph 96 show this week. See GA, Page 16.

Avid at the movies. See Reviews, Page 83.



Teachers and students are learning the ABCs of the Web. See Solutions, Page 85.

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Multimedia, 3-D hot topics at New Orleans Siggraph • QuickDraw 3D to plug into renderers • Extensis preps new modules for Photoshop, XPress • Broderbund to buy T/Maker

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THIS WEEK ONLINE

Macworld Expo news

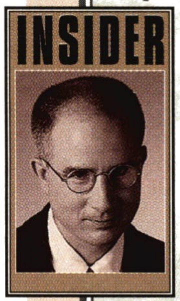
Boston hot spots

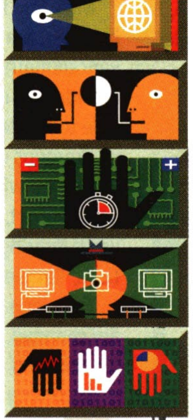
www.mactheknife.com

Colby's picks

Online exclusives

If you can't make it to Boston for this week's Macworld Expo (or even if you can), MacWEEK Online will keep you informed. . . . Before the show, our guide to what's hot in Boston and daily show previews set the scene. . . . During the show, check in often to get the latest news from MacWEEK staff. . . . What do you get when you put Mac the Knife online? An Electric Knife! www.mactheknife.com debuts this week. . . . In the MacWEEK Insider, Associate Editor/News Clifford Colby takes a two-dimensional look at the expo pickings.





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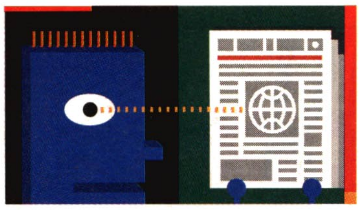


NEWS

VST readies Zip for PowerBook 5300s, 190s. See Page 6.

CPUs to storm Boston expo

Apple, cloners unpack new boxes

By David Morgenstern and Joanna Pearlstein

Apple and Mac-compatible vendors will open the floodgates on new CPUs at this week's Macworld Expo in Boston. The high- and low-end systems will offer users a wide selection for performance and options.

Apple will introduce its Performa 6400 — in a pair of new entry-level minitower configurations — as well as faster versions of its Power Mac 7600, 8500 and 9500 models. The company will add 8x CD-ROM drives to the Power Mac line. In addition, the show will see Apple's first multiprocessing system, the 9500/180MP.

▸ **DayStar Digital Inc.** of Flowery Branch, Ga., will ship two speedier versions of its Genesis MP multiprocessing systems. DayStar will also unveil its Genesis MP 360+. The new versions are sold without RAM or hard drives.

▸ **Power Computing Corp.** of Round Rock, Texas, will showcase new PowerTower Pro and PowerBase lines.

Power Computing said the PowerBase video card will integrate a graphics chip that accelerates 3-D texture mapping and blending as well as QuickTime video playback.

▸ **UMAX Computer Corp.** of Fremont, Calif., will display faster versions of its SuperMac S900L series, a new desktop model and a quartet of 603e-based entry-level machines.

See CPUs, Page 6

For an in-depth look at the new CPUs, see Reviews, Page 73.

NUpowr ups system speed

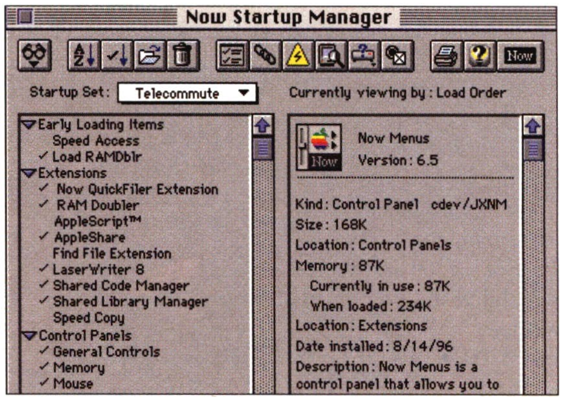
By Joanna Pearlstein

Newer Technology Inc. is prepping cards that will speed desktop and portable systems.

Newer plans to introduce this week at Macworld Expo in Boston a faster version of NUpowr, the company's upgrade option for users of PowerBook 500-series machines. Scheduled to ship in September, the new NUpowr will use a PowerPC 603e processor running at 167 MHz. It will be available in configurations with 0, 4 and 8 Mbytes of RAM and will cost $725, $850 and $999, respectively.

The company is also readying a pair of accelerators for PCI desktop Macs. The 180- and 200-MHz MAXpowr cards, a set of processor daughtercard upgrades for Power Mac 7500, 7600, 8500 and 9500 machines, will cost $885 and $1,080, respectively. The cards are expected to ship late this month or early in September.

Newer Technology Inc. of Wichita, Kan., is at (316) 943-0222 or (800) 678-3726; fax (316) 943-4515; sales@newertech.com; http://www.newertech.com. □



Now Startup Manager

Startup Set: Telecommute

Currently viewing by : Load Order

- Early Loading Items
  - Speed Access
  - ✓ Load RAMDblr
- Extensions
  - ✓ Now QuickFiler Extension
  - ✓ RAM Doubler
  - AppleScript™
  - ✓ AppleShare
  - Find File Extension
  - ✓ LaserWriter 8
  - ✓ Shared Code Manager
  - ✓ Shared Library Manager
  - Speed Copy
- Control Panels
  - ✓ General Controls
  - ✓ Memory
  - ✓ Mouse

Now Menus
Version: 6.5

Kind: Control Panel cdev/JXNM
Size: 168K
Location: Control Panels
Memory: 87K
Currently in use: 87K
When loaded: 234K
Location: Extensions
Date installed: 8/14/96
Description: Now Menus is a control panel that allows you to

The rebuilt Now Startup Manager allows users to handle multiple sets of extensions and control panels and can import set information from Conflict Catcher.

Now Software retools Utilities package to 6.5

By Marty Cortinas

Now Software Inc. plans to ship by the end of the month a major upgrade to Now Utilities. Version 6.5 will include a complete reworking of Now Startup Manager, the company said, and come with enhancements to Now Super Boomerang and Now QuickFiler, as well as to Now AutoType, Now FolderMenus, Now Tabs and Now Shortcuts.

The Super Boomerang update will allow users to resize the Open and Save dialog boxes, resort lists, and include a new Labels menu similar to the Finder's.

QuickFiler will gain the capability to find duplicate files and will be integrated into Now Mail to facilitate the sending of files across a network.

Taking dead aim at Casady & Greene Inc.'s Conflict Catcher, the completely rebuilt Startup Manager 7.0 will feature a plug-in database that will contain information on most known extensions and conflicts. The Now

See Now, Page 6

MathCad Plus 6 to add calculating engine

By Leander Kahney

MathSoft Inc. is set to ship in September MathCad Plus 6, the first major revision of its numeric and symbolic calculation application in three years.

Replacing Version 3.1 and jumping several numbers, the $349 program will be unveiled this week at Macworld Expo in Boston. MathSoft said the new version will contain dozens of new features.

MathCad Plus 6 will gain the capability to solve symbolic algebra and perform differential equations and advanced matrix functions, said Chris Randles, MathSoft vice president of marketing. He also said the update will be able to create 2-D and 3-D plots and share data across workgroups or the Internet.

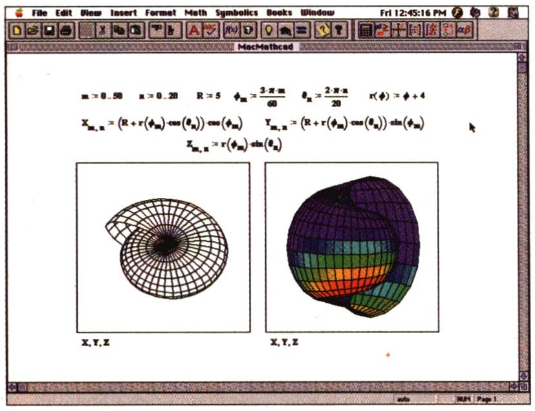
Using a whiteboardlike worksheet, the program will let users import, export and change calculations and data by using floating palettes or by dragging and dropping selections, Randles said.

The worksheets will be live, so when data or equations are changed, all functions and plots will be automatically recalculated, Randles said.

According to Randles, the update will let users automate tasks via Apple events as well as animate plots with QuickTime.

Randles said MathSoft will ship with the update comprehensive tutorials called QuickSheets, which will range from elementary to advanced levels, as well as a technical spelling checker.

MathSoft Inc. of Cambridge, Mass., can be reached at (617) 577-1017 or (800) 628-4223; fax (617) 577-8829; sales-info@mathsoft.com; http://www.mathsoft.com.



$m := 0..50 \quad n := 0..20 \quad R := 5 \quad \phi_m := \frac{3\cdot\pi\cdot m}{60} \quad \theta_n := \frac{2\cdot\pi\cdot n}{20} \quad r(\phi) := \phi + 4$

$X_{m,n} := (R + r(\phi_m)\cdot\cos(\theta_n))\cdot\cos(\phi_m) \quad Y_{m,n} := (R + r(\phi_m)\cdot\cos(\theta_n))\cdot\sin(\phi_m)$

$Z_{m,n} := r(\phi_m)\cdot\sin(\theta_n)$

MathSoft's MathCad Plus 6 will come with sophisticated graphing functions and include 3-D animation.

Mac sales dipped in Q2

By Leander Kahney

Apple's hardware sales dipped again last quarter, but there are signs that things may be picking up.

Two reports released at the end of July — one from International Data Corp. of Framingham, Mass., the other compiled by Dataquest Inc. of San Jose, Calif. — showed slightly different figures but delivered the same message.

IDC said Apple shipped 410,000 computers in the United States in the second quarter, down 21.5 percent from 522,000 in the same quarter last year. Dataquest estimated unit sales at 415,000 during the quarter, down 21.7 percent from 530,000 in the year-ago quarter.

But both reports showed Apple's market share picked up from the previous quarter. IDC estimated Apple's share of the U.S. personal computer market increased to 6.9 percent in the second quarter from 6.6 percent in the first quarter, while Dataquest said Apple's market share rose to 7.4 percent from 7.3 percent the previous quarter. IDC put Apple's market share at 10.3 percent for the second quarter of last year; Dataquest reported 10.6 percent.

"The sales plunge seems to have leveled off," said Eric Lewis, one of the IDC analysts who wrote the report. Lewis said demand for Power Macs sustained Apple, while the damage came from the spring PowerBook recall and a lack of new Performas for the consumer channel.

"If Apple can tackle the PowerBook fiasco and freshen the Performa line, we should see a recovery in the next quarter," Lewis said.

Bill Schuab, co-author of the Dataquest report, agreed that sales would pick up next quarter but said it's because the return to school in the fall is traditionally Apple's best sales period. □

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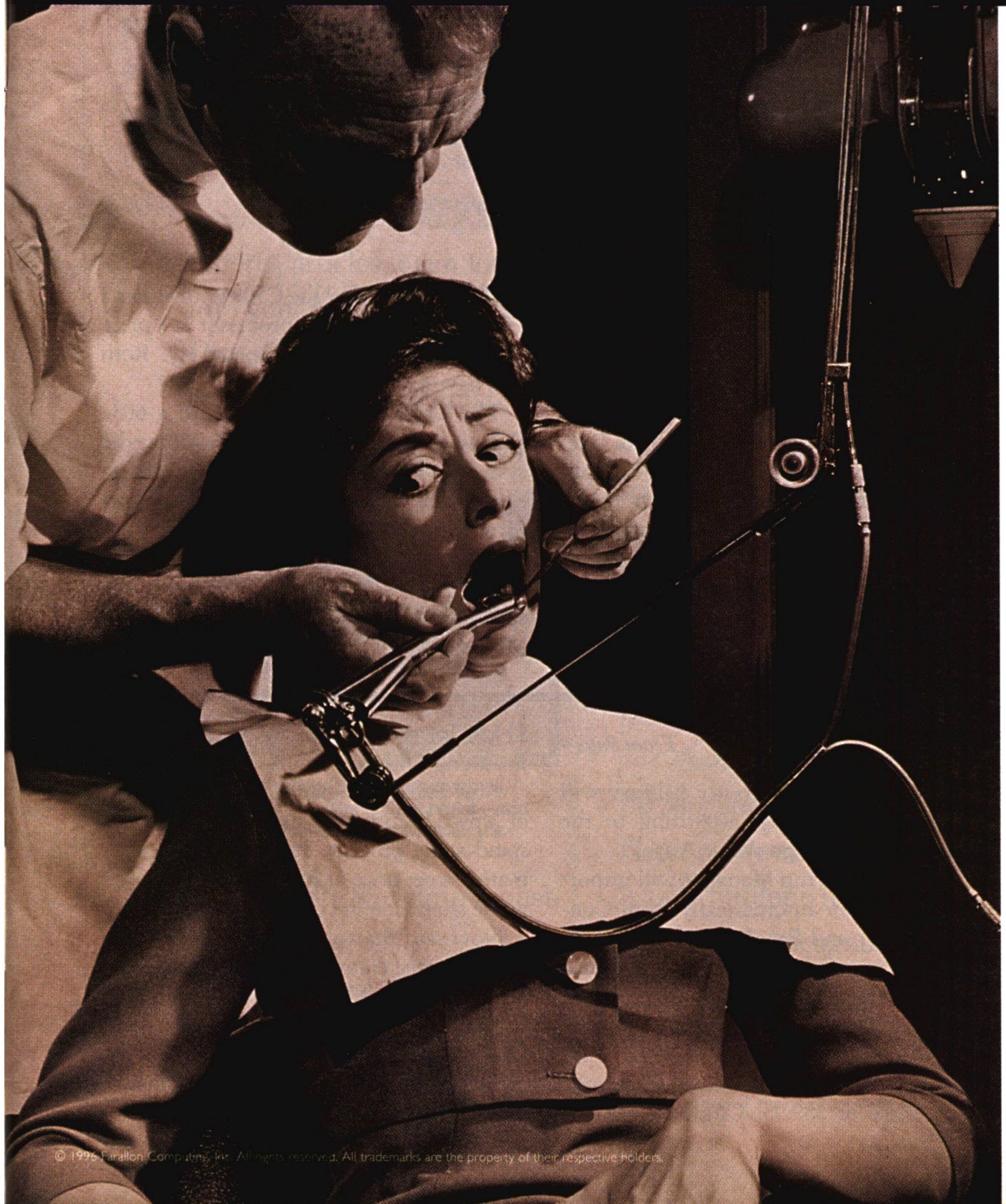

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VST preps PB Zip and hard drives, adapters

By John Poultney

VST Technologies Inc. this week plans to announce an internal Zip drive for the PowerBook 190 and 5300 series. The company also recently unveiled a new line of hard drive modules and power adapters for the notebooks.

VST said its Zip 100 module will use a new Iomega Corp. OEM mechanism with a height of 15mm. VST said it will ship the drives by the first quarter of 1997 and demonstrate the hot-swappable modules at this week's Macworld Expo in Boston.

The VST Zip 100 drive will fit into the expansion bay of the PowerBook 190 and 5300 series.

VST also recently released its Expansion Bay Hard Drive line, which includes 640-Mbyte and 1.2-Gbyte models for $429 and $699, respectively. Analysts said the modules use new 3-inch mechanisms from San Jose, Calif.-based JTS Corp. and are less expensive than comparable 2.5-inch designs more commonly found in notebooks. The company said it expects to ship additional 1-, 1.6- and 2-Gbyte models later this year; pricing for the forthcoming models was not available.

The hot-swappable modules will ship with the Mac OS installed, and users can star their systems from the drives, VST said.

In addition, the company will unveil its Expansion Bay 5000 Power Adapter, available in $179 AC and $259 AC/DC versions; they are due by the third quarter. The adapters can be used in the drive bay to eliminate the bulky external power adapter.

VST Technologies Inc. of Acton, Mass., can be reached at (508) 263-9700; fax (508) 263-9876. □

New and upgraded CPUs introduced this week

SYSTEM	PROCESSOR	CONFIGURATION	PRICE
Apple			
Power Mac 6400/180	180-MHz 603e	16/1.2GB/8xCD**	$2,399
Power Mac 6400/200	200-MHz 603e	16/2.4GB/8xCD/256KB cache**	$2,799
Power Mac 7600/132	132-MHz 604	16/1.2GB/8xCD/256KB cache	$2,999
Power Mac 8500/180	180-MHz 604e	32/2GB/8xCD/256KB cache	$4,499
Power Mac 9500/200	200-MHz 604e	32/2GB/8xCD/card*/512KB cache	$4,899
Power Mac 9500/180MP	2 180-MHz 604e	32/2GB/8xCD/card*/512KB cache	$5,699
DayStar Digital Inc.			
Genesis MP 360+	2 180-MHz 604e	0/0/8xCD/512K cache	$5,499
Genesis MP 720+	4 180-MHz 604e	0/0/8xCD/512K cache	$8,499
Genesis MP 800+	4 200-MHz 604e	0/0/8xCD/512K cache	$9,999
Power Computing Corp.			
PowerBase 180	180-MHz 603e	16/1.2GB/8xCD/256KB cache	$1,495
PowerBase 200	200-MHz 603e	16/1.2GB/8xCD/256KB cache	$1,795
PowerBase 240	240-MHz 603e	16/1.2GB/8xCD/256KB cache	$2,195
PowerTower Pro 180	180-MHz 604e	16/2GB/8xCD/card*/1MB cache	$4,195
PowerTower Pro 200	200-MHz 604e	16/2GB/8xCD/card*/1MB cache	$4,495
PowerTower Pro 225	225-MHz 604e	16/2GB/8xCD/card*/1MB cache	$4,995
UMAX Computer Corp.			
SuperMac C500/603e/140	140-MHz 603e	8/1.2GB/8xCD/1MB VRAM/256KB cache**	$1,600
SuperMac C500/603e/160	160-MHz 603e	8/1.2GB/8xCD/1MB VRAM/256KB cache**	$1,700
SuperMac C600/603e/180	180-MHz 603e	16/2GB/8xCD/1MB VRAM/256KB cache**	$2,200
SuperMac C600/603e/200	200-MHz 603e	16/2GB/8xCD/1MB VRAM/256KB cache**	$2,600
SuperMac J700/604/150	150-MHz 604	16/2.1GB/8xCD/card*/512KB cache	$3,000
SuperMac S900L/604e/180	180-MHz 604e	32/2.1GB/8xCD/512KB cache	$4,000
SuperMac S900L/604e/200	200-MHz 604e	32/2.1GB/8xCD/512KB cache	$4,300

** Includes third-party graphics card. ** Includes 28.8-Kbps modem.*

CPUs

From Page 4

Similar in design to the S900L, the new SuperMac J700 will offer four full-length PCI slots and run a 150-MHz 604 processor. The $3,000 system will come with an Integrated Micro Solutions TwinTurbo graphics card with 2 Mbytes of video RAM. UMAX said the J700 is due in September.

The SuperMac C500 and SuperMac C600 lines, which will use slim-line and minitower enclosures, respectively, are also slated for release in September.

UMAX will offer the C500 with either a 140- or 160-MHz 603e processor at a price of $1,600 and $1,700, respectively. Both will have a pair of PCI slots.

The C600 will also come with a 603e chip with speeds of 180 or 200 MHz; the systems will cost $2,200 and $2,600, respectively. The minitower case will support three full-length PCI cards.

Both models will come with a keyboard and mouse. UMAX will also boost the speed of its S900 line with 180- and 200-MHz 604e processors. □

Now

From Page 4

Startup Manager Reference Library will be updated regularly, according to the company, and will go online Aug. 7.

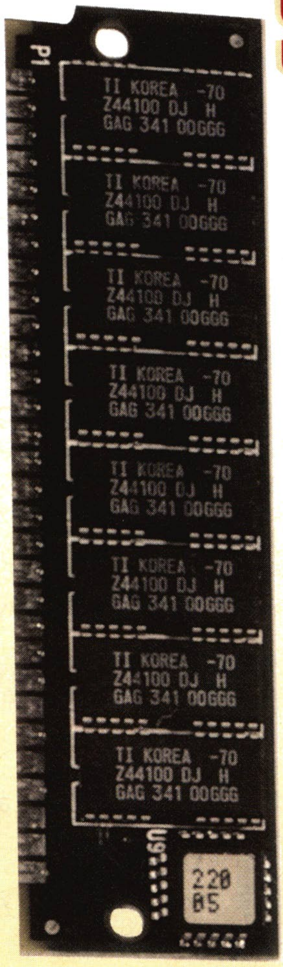
Now said Startup Manager will import set information automatically from Conflict Catcher and Extensions Manager. It will also manage multiple sets of fonts; control panels; extensions; and plug-ins, including those for Netscape Navigator and Adobe Photoshop.

Now Utilities 6.5 will have an estimated street price of $89.95. Upgrades will be $14.95 for users of Version 6.0 and $29.95 for users of other versions.

Now Startup Manager 7.0, a component of Now Utilities, will also be available as a stand-alone product. It will have an estimated street price of $55; a competitive upgrade from Conflict Catcher will be $29.95.

Now said Startup Manager 7.0 will be available free from its Web site during the last two weeks of August.

Now Software Inc. can be reached at (503) 274-2800; (800) 689-9427; fax (503) 274-0670; info@nowsoft.com; http://www.nowsoft.com. □



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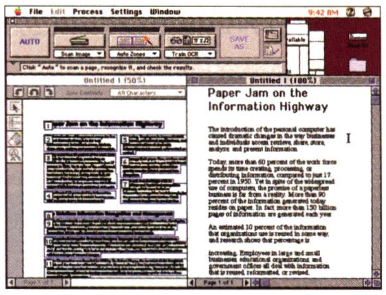

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Lenses for digital cameras

By Kelly Ryer

Film camera users have always been able to choose from hundreds of lenses and accessories, and now users of point-and-shoot digital cameras can get in on the action.

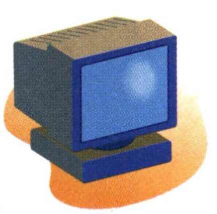
Tiffen Corp. of Hauppauge, N.Y., now manufactures lens and accessory kits for several digital cameras, including Eastman Kodak Co.'s DC40 and DC50, Epson America Inc.'s PhotoPC, Apple's QuickTake 100 and 150, and Casio Inc.'s QV-10.

Distributed by DC Pro, the lenses include a telephoto lens, a wide-angle conversion lens, a super-wide-angle lens and a set of three close-up lenses. Pricing is different for each camera and ranges from $59.95 to $99.95.

A table-top tripod is available for about $20, and standard tripods cost $119.95 to $129.95. Also available are UV protectors, lens cleaning kits, adapters, system cases and a color warming filter.

DC Pro of St. James, N.Y., is at (516) 434-8800 or (800) 522-7835; fax (516) 434-9238; dcproacc@aol.com. □

MONITOR BEAT



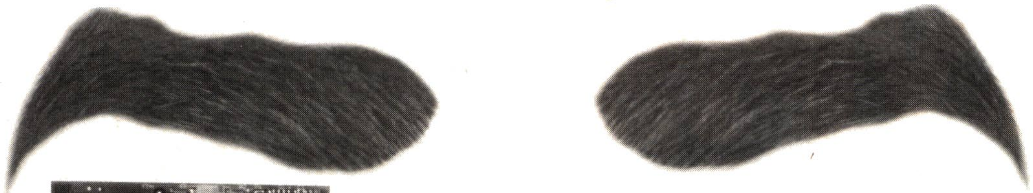
Grab a MAG. MAG InnoVision Co. Inc. is offering new 15- and 17-inch monitors. Based on Sony Corp.'s Trinitron CRTs, the 15-inch DX15T-M has an estimated street price of $385, and the 17-inch DX17T-M is $740, MAG said. The DX15T-M has a resolution of 1,152 by 824 pixels at a refresh rate of 75 Hz. The DX17T-M has a resolution of 1,024 by 768 pixels at 75 Hz. Both have an aperture grille of 0.28mm and are bundled with Sonnetech Ltd.'s Colorific color-management software and a free Mac adapter. Phone (714) 751-2008 or (800) 827-3998; fax-back (714) 751-0166; sales@maginnovision.com; http://www.maginnovision.com.

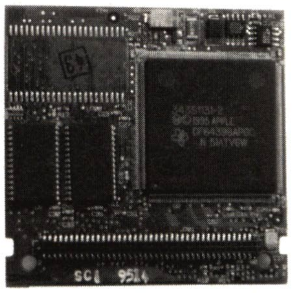
Room with a ViewSonic. ViewSonic Corp. last week introduced a new 21-inch high-resolution monitor for the graphics and CAD markets. The $1,695 P810 replaces ViewSonic's 21PS, which the company said is its best-selling 21-inch monitor. With a noninterlaced Matsushita CRT, the P810 has a maximum resolution of 1,600 by 1,200 pixels at a refresh rate of 76 Hz. The screen has a 20-inch image area and a dot pitch of 0.25mm. The P810 also features an Advanced Invar shadow mask, on-screen controls and connectors that lets users toggle between two input sources. Phone (909) 869-7976 or (800) 888-8583; fax-back (909) 869-7958; mis@viewsonic.com; http://www.viewsonic.com.

Smile, you're saving money. Smile International Inc. recently shipped its new low-cost color monitor. Aimed at budget buyers, the $275 CD6424VS has a 14-inch, noninterlaced CRT with a resolution of 1,024 by 768 pixels, a variable refresh rate between 50 Hz and 100 Hz and a dot pitch of 0.28mm. The monitor needs a $25 Mac adapter, the company said. Phone (714) 546-0336 or (800) 876-4532; fax (714) 546-0315.

— By Leander Kahney

Look at these four new products Newer is introducing at MacWorld!





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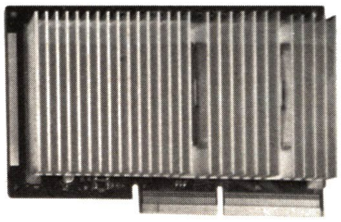

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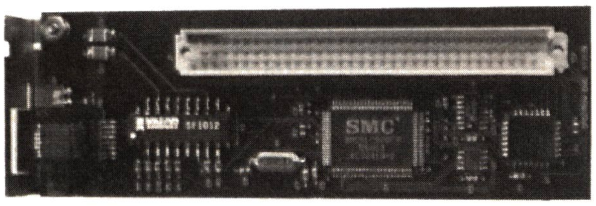

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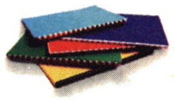

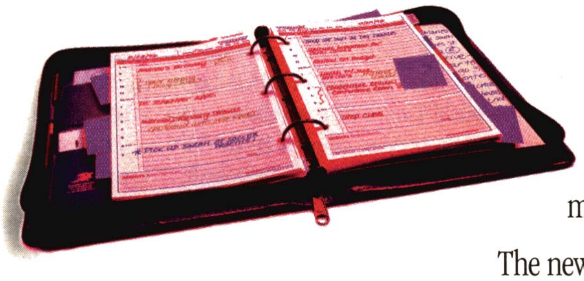

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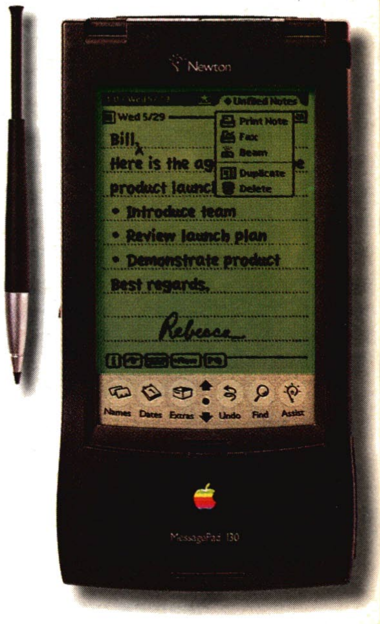
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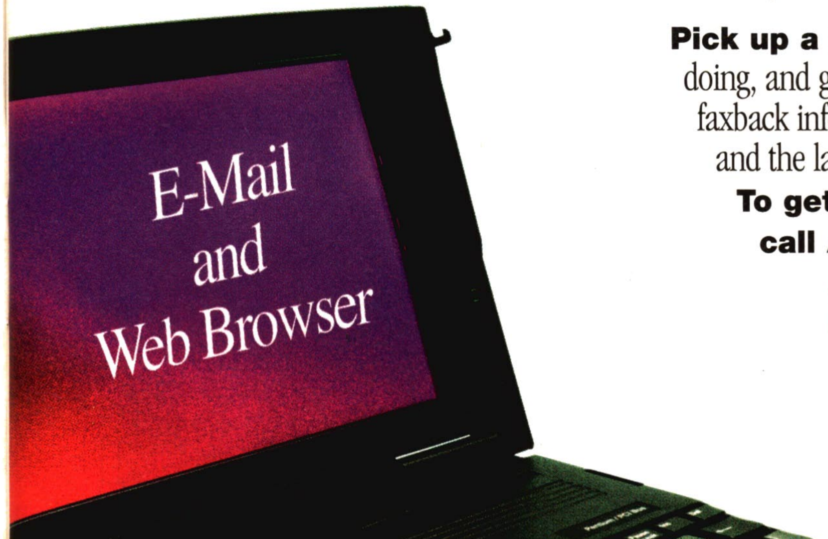
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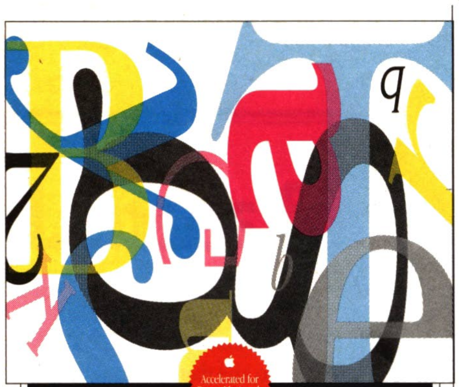

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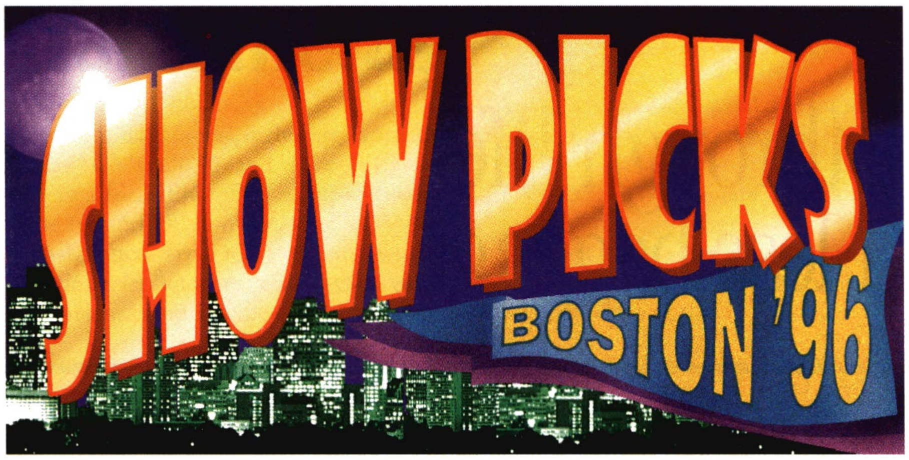


Show picks

From Page 1

On the clone side, Power Computing Corp. hopes to kick Intel Corp.'s keister with two new lines of Power Mac clones.

UMAX Computer Corp. will roll out its own 603e systems ranging from 140 to 200 MHz.

Besides its $1,499 nPower 360+ dual-processor upgrade board, DayStar Digital Inc. will take the wraps off two 604e-based multiprocessing clones. (The full story on Power Mac and clone models shipping at the show is on Page 4.)

Motorola Computer Group will reportedly demonstrate 604e- and 603e-based clones due this fall as well as a prototype of its PowerPC Platform (PPCP) model.

On the upgrade path, Reply Corp. will show new DOS on Mac cards as well as a 133-MHz version of its NuBus board for Power Mac 7100 and 8100 systems.

MicroMac Technology Inc. will show a new accelerator board for Power Mac 7500, 7600, 8500 and 9500 systems. The PowerMaster uses a 150-MHz PowerPC 604 chip.

INTERNET

HTML editing is as hot as Boston in August, as demonstrated by the companies lined up to show off their Web-publishing solutions. Claris Corp. will ship Home Page, its WYSIWYG editor. DeltaPoint Inc. will demonstrate QuickSite, its $99.95 Web-publishing and site-management tool, and Miracle Software Inc. will preview Version 2.0 of World Wide Web Weaver, its HTML editor.

Digital Comet Inc. will launch a beta version of CometPage, its semiautomated Web-authoring tool. The software will let users drag and drop commands, forms and macros into their Web-page editor and serve the pages locally for testing.

Web servers will also be well-represented. Quarterdeck Corp. plans to roll out WebStar 1.3, the latest version of its Web server, which now features a plug-in architecture. Meanwhile, developers will highlight add-ons for Quarterdeck's server. For example, FireSite from ClearWay Technologies Inc. will use an Internet service provider's server to increase server throughput.

ResNova Software Inc. will demonstrate two new Web servers. Boulevard is a full-featured server aimed at the traditional Webmaster, while Web for One (formerly PWS) is a personal server designed for intranets and the home or small-business user.

Pictorius Inc. will show off its Entrada family of free Internet servers as well as Entrada Net Builder, a new development tool. Sonic Systems Inc. will demo its suite of Internet servers united behind one administration interface.

Spider Island Software Inc. will talk up TeleFinder 5.1, which the company has converted from a BBS to a full-featured Internet server. SoftArc Inc. will show FirstClass 4.0. Due in early 1997, the new version will deliver conferencing, calendaring, e-mail, the Web and Usenet news through one server.

On the client side, America Online Inc. and CompuServe Inc. will each show off Version 3.0 of their Mac clients. Both the AOL and CompuServe clients will include Microsoft Corp.'s Internet Explorer Web browser. And speaking of Explorer, Microsoft plans to show off Version 2.1 of its browser, which will gain frame capabilities.

You'll have to visit the Greenhouse — a pavilion for budding companies — to see the Mac version of PointCast Inc.'s PointCast Network, software that brings news from a variety of online sources to users' screens when their Macs are idle.

CE Software Inc. will demonstrate QuickMail Pro, its answer to Internet e-mail standards, and announce a POP 3 version of its e-mail client. CE will also discuss QuickMail POP, a free, slimmed-down version of QuickMail Pro due this fall.

Insignia Solutions Inc. will show NTrigue Net Client, a tool to let Macintosh users access 32-bit Windows applications over the Internet.

Dutch shareware developer Alco Blom will show an update to URL Manager Pro, a bookmark manager for Netscape Navigator, and introduce URL Provider, a Control Strip module that serves as a launch pad for Internet applications and URLs.

Terry Morse Software Inc. will show off Myrmidon, a "one-click" utility that converts any document into HTML via a Chooser extension.

Natural Intelligence Inc. will give the first public showing of Roaster Professional, a development environment for building stand-alone applications in Java, Sun Microsystems Inc.'s platform-independent programming language. PowerProduction Software will display WebBurst, its visual Java applet authoring tool.

OPENDOC

Apple and its partners promise to plug OpenDoc whenever possible as the company sets aside a quarter of its 24,000-square-foot pavilion to show off the component-software technology.

Besides shipping OpenDoc 1.1, Apple will unleash the next version of Cyberdog, its Internet-access tool.

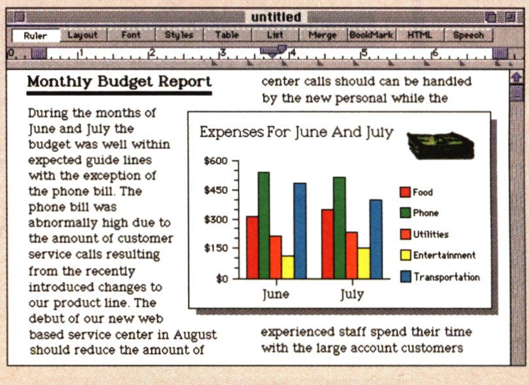
At Adrénaline Software Inc.'s booth, attendees will be able to check out the Adrénaline Numbers spreadsheet part and Adrénaline Charts graphing part. Corda Technologies Inc. will release its C-Graph data-graphing component and C-Table table-creation and -editing component.

Digital Harbor plans to roll out Wav, its OpenDoc-based word processing application. Corel Corp. will tout a Live Objects version of WordPerfect. Worldsoft Corp. will debut the Live Objects version of WorldWrite. Nisus Software Inc. will offer a peek at the next version of Nisus Writer, which will be converted to a Live Objects container. And SoftLinc Inc. will talk up Lexi, its bundle of word processing utilities.

Claris will demonstrate ClarisWorks running as a container. MetaMind Software Inc. will release a free, stripped-down version of Page Composer, its page-layout component. dtF Americas Inc. will ship dtF Database Toolkit, parts for linking applications with databases. And ComGrafix Inc. will unfurl GeoInsight, a set of GIS parts.

Spyglass Inc. will showcase Internet-client parts. Totally Hip Software Inc. will display Sizzler, the company's multimedia

CORDA PLUGS INTO OPENDOC



Monthly Budget Report

During the months of June and July the budget was well within expected guide lines with the exception of the phone bill. The phone bill was abnormally high due to the amount of customer service calls resulting from the recently introduced changes to our product line. The debut of our new web based service center in August should reduce the amount of center calls should can be handled by the new personal while the experienced staff spend their time with the large account customers

Conventioneers can check out the latest OpenDoc developments this week when part makers display their wares, which now carry the Live Objects label.

Among those at the show will be Corda Technologies Inc., which will ship its Live Objects data-graphing part, shown at left, and a table-editing part.

plug-in for Cyberdog. Hutchings Software will show off Rapid-I Button, a button-part editor. And Kantara Development will release PartFinder, a part for tracking down missing components.

GRAPHICS

While mother ship Apple finally delivers QuickTime 2.5, third-party products will testify to the Mac's enduring presence in graphics, multimedia and page-layout software.

Deneba Software plans to ship Version 5.0 of its Canvas graphics application. Regularly $599.95, Canvas will sell for $149.95 at the show.

Fractal Inc. will demo Detailer, the company's new 3-D paint program. MicroFrontier Inc. will show ColorIt! 3.5, which will cost $149.95 and support layers.

E-Magine Co. will ship ProView 1.3, its $100 multimedia-authoring tool, and demonstrate Version 2.0.

Canto Software Inc. will debut Version 3.0 of its Canto Cumulus Network Image Database. IMSI intends to highlight TurboCAD 2D/3D 3.0, which adds a 3-D modeler to the CAD program.

Specular will show off Infini-D 3.5, due to ship this month for $649, and demo Backburner 3.5, a 3-D distributed-rendering utility. Rival Strata Inc. will show a beta version of StudioPro 2.0, due to ship in September for $1,495.

Avid Technology Inc. will be showing off a $7,500 Real-time Effects Option for its $14,995 MCXpress digital video-editing system.

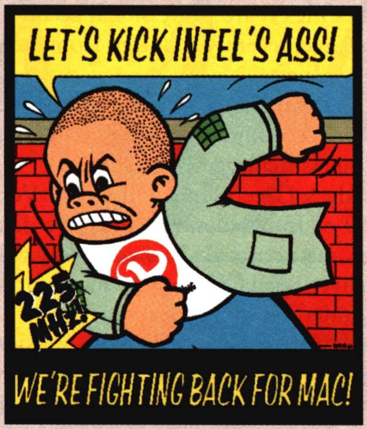
PaceWorks Corp. will show Dancer, its QuickDraw GX-based 2-D animation tool, and Pedagoguery Software will demonstrate Gif.gIf.giF, which creates animated GIF files of a user's screen.

Vivo Software Inc. plans to release VivoActive Player, a streaming video plug-in for Navigator, and demonstrate VivoActive Producer, a forthcoming QuickTime-conversion utility.

G/matter Inc. will introduce Killer Transitions, a plug-in for Macromedia Inc.'s Authorware.

InVision Interactive Inc. will offer a sneak peek at Version 1.1 of its CyberSound VS software-only synthesizer, which is scheduled to ship in September for $249.

READY FOR A FIGHT


LET'S KICK INTEL'S ASS!
225 MHz!
WE'RE FIGHTING BACK FOR MAC!

Power Computing Corp. will come out swinging this week in Boston, and it will have the T-shirt slogan to prove it. The feisty cloner will roll out its 225-MHz PowerPC 604e PowerTower Pro. The company will also introduce the PowerBase line, an entry-level collection of PowerPC 603e-based clones zipping along at 180, 200 and 240 MHz.

Power Computing will quiz conventioneers on Mac trivia and reward winners with T-shirts displaying the pugnacious graphic at left. After these 250 to 500 shirts are gone, it will switch to the less aggressive "We're Fighting Back for Mac" T-shirts.

STORAGE

Fujitsu Computer Products of America Inc. will put two small storage packages on parade. The DynaMO 640 is an external, 3.5-inch magneto-optical drive, and the DynaMO 230 Portable PC Card is a small MO device with a PC Card interface and an optional battery pack.

Mitsubishi Chemical America Inc. will introduce the MCA640, a 640-Mbyte, 3.5-inch MO drive. Olympus Imaging Systems Inc. will deliver its Sys.230 line of 3.5-inch MO drives.

On the software side of the tracks, MicroNet Technology Inc. will roll out DiskWorks Unlimited 3.0, the latest version of its RAID tools for standard and removable SCSI disk arrays.

Adaptec Inc. will debut Version 1.4 of its Remus and Remus Lite RAID software. The company will also show a prototype of its PCI FireWire adapter card.

FWB Software LLC will introduce Turbo Toolkit, three system extensions to speed disk I/O. It will also show Hard Disk Toolkit 2.0 and RAID Toolkit 2.0.

Software Architects Inc. will unwrap three new products: DataSaver Personal Backup Utility, a three-step backup program; DOS Mounter 95, a native Power Mac file transfer utility for Windows 95 files; and FormatterFive 3.0, a major upgrade to the company's hard disk management and partitioning kit.

Dantz Development Corp. will debut Remote Pack for Windows 95 and NT, a package that lets Macs coordinate backups on LANs running Windows machines.

Optical Access International Inc. will up the ante for networked CD-ROM servers with its new 16-drive CD-Maxtet 1600. The company will also preview the CD-Maxtet 6400, a 64-drive system.

CharisMac Engineering Inc. will ship Version 1.10 of its Discribe CD mastering software and show off its Anubis 2.55 RAID software.

NETWORKING

Attendees won't be the only ones networking at the show. Farallon Communications Inc. will show off its latest combo PC Card, which packs 10BASE T Ethernet and 28.8-Kbps data and fax capabilities into one credit card-size device. Dayna Communications Inc. and Kingston Technology Corp. will show Fast Ethernet PCI cards priced at less than $200. Sonic will demo Fast Ethernet bridges starting at $595.

Newer Technology Inc. will pitch in with its new EtherTech line of 10/100 Ethernet cards for NuBus, PCI, processor direct and communications slots. Newer will also show its high-speed modem entry: the LinkCom, a palm-size, 33-Kbps fax modem that draws power from the ADB port or an AC adapter. Viking Components Inc. will introduce its NetLink 28.8-Kbps PC Card modem.

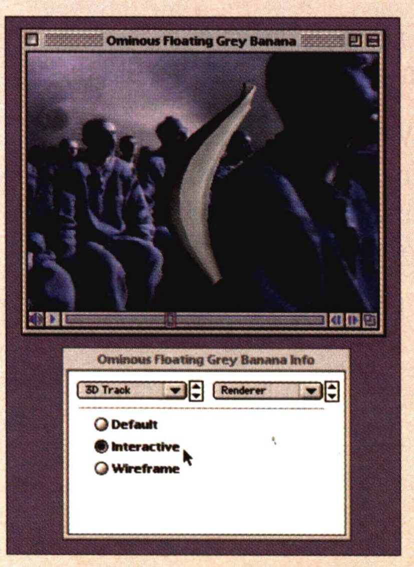
PERIPHERALS

Photo heavyweight Nikon Inc. will unveil two pocket-size digital cameras priced at less than $1,000: a PC Card version that plugs into notebook computers and a multi-input camera that records stills, video and audio, and hooks up to televisions.

On the scanner front, Agfa, a division of Bayer Corp., will debut two low-end flatbeds, the SnapScan and the StudioStar. Not content with Mac clones, UMAX

See Show picks, next page

STRANGE FRUIT


Ominous Floating Grey Banana

Ominous Floating Grey Banana Info

3D Track

Renderer

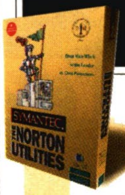
○ Default

● Interactive

○ Wireframe

Apple intends to wow expo attendees with the latest version of QuickTime. The new 3-D layer of Version 2.5 can hold 3DMF objects. At left, a banana object has been placed over a QuickTime movie of Apple's "1984" advertisement. In a future version, 3DMF will include 3-D animation information, so users will be able to display animated 3-D objects in QuickTime.

QuickTime 2.5 will also bring a software MPEG compressor-decompressor; embedded closed-caption text; and direct importing of GIF, Adobe Photoshop, MacPaint and Silicon Graphics images.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MacUser RATED August 1995

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Show picks

From previous page

Technologies Inc. will exhibit its line of business and graphics scanners, including the 1,000-by-2,000-dpi PowerLook 2000.

Howtek Inc. will demonstrate new software for its scanners, including two versions of its Trident software for separations and photos.

At the output end, Hewlett-Packard Co. will demonstrate three workgroup color printers, the LaserJet 5, 5N and 5M, and two color inkjets, the DeskJet 1600C and 1600CM. Xerox Corp. will highlight color copier-printers for business users, including the DocuColor 40 and the Regal 5790.

On the monitor front, ViewSonic Corp. will introduce the PT810, a high-resolution, 21-inch monitor. Portrait Displays Inc. will promote two pivoting monitors: the $999 17-inch Pivot 1700 and the $2,999 21-inch Pivot 2100.

Input devices will also get their 15 minutes of fame. Acecad Inc. will show the Acecat III, a $99 5-by-5-inch graphics tablet that features 2,450 lines-per-inch resolution.

Wacom Technology Corp. hopes to make a mark with its new DuoSwitch Erasing UltraPen stylus.

PRODUCTIVITY

Corel will show Corel Office JV, a productivity software suite written entirely in Java. Slated to ship in the first quarter of 1997, the package will include a word processor, spreadsheet, charting tool and personal information manager. CorelDraw 6.0 and WordPerfect 3.5 will also be on display.

After a five-year absence, Wingz is back. Investment Intelligence Systems Corp. will show Version 2.1 of the spreadsheet.

Claris will ship its Organizer 2.0 PIM and show its newly LAN-savvy Office-Mail package.

Microsoft will show off the new version of Visual FoxPro and highlight Exchange 4.0 e-mail for both 680x0 and PowerPC machines as well as a beta version of Schedule+ 7.0.

Accountants should check out Check-Mark Software Inc., which will unveil Version 5.0 of MultiLedger, its general-purpose accounting program. FlexWare International LLC will preview Version 9.0 of its FlexWare professional accounting package, recently acquired from State of the Art Inc.

Big Software Inc. is opening the books on its just-released Big Business 2.0 accounting and business-management package.

Casady & Greene Inc. will unveil Version 2.0 of InfoGenie, its utility for data storage and retrieval. The company will also deliver Spell Catcher, the successor to its Thunder 7 spelling checker.

Franklin Quest Co. will show Version 4.0 of its Ascend PIM. Nolo Press will have two new legal programs on tap: Personal RecordKeeper 4.0, which helps users keep legal and financial records, and Every Landlord's Legal Guide.

Shana Corp. will introduce Informed Designer 2.0 and Informed Filler 2.0 electronic-forms software.

VARIOUS AND SUNDRY

Connectix Corp. will hawk RAM Doubler 2.0, an update that includes a new control panel for compression levels.

Main Event Software Inc. plans to unveil Version 2.0 of Scripter, its AppleScript authoring and development environment. Mainstay will show a Power Mac-native version of Phyla, its object-oriented database.

PowerBook 500-series users can check out a new upgrade option from Newer Technology. The company will preview a faster version of the NUpowr, a 167-MHz PowerPC 603e card for PowerBook 520 and 540 machines.

Making hay while the sun shines, Keep It Simple Systems will introduce the Mercury II Solar Charging System. The company said the revamped package offers more-efficient solar panels and a voltage regulator.

Battery Technology Inc. and Iomega Corp will each introduce battery packs for the Iomega Zip drive.

And last but not least, Synex Inc. will debut Power Mac versions of Bar Code Pro and Bar Code Pro Filemaster. □

READ ALL ABOUT IT IN MACWEEK REPORT

MacWEEK REPORT

Apple releases fix for PB 5300 bugs

Buckley takes hot seat to cool users' tempers

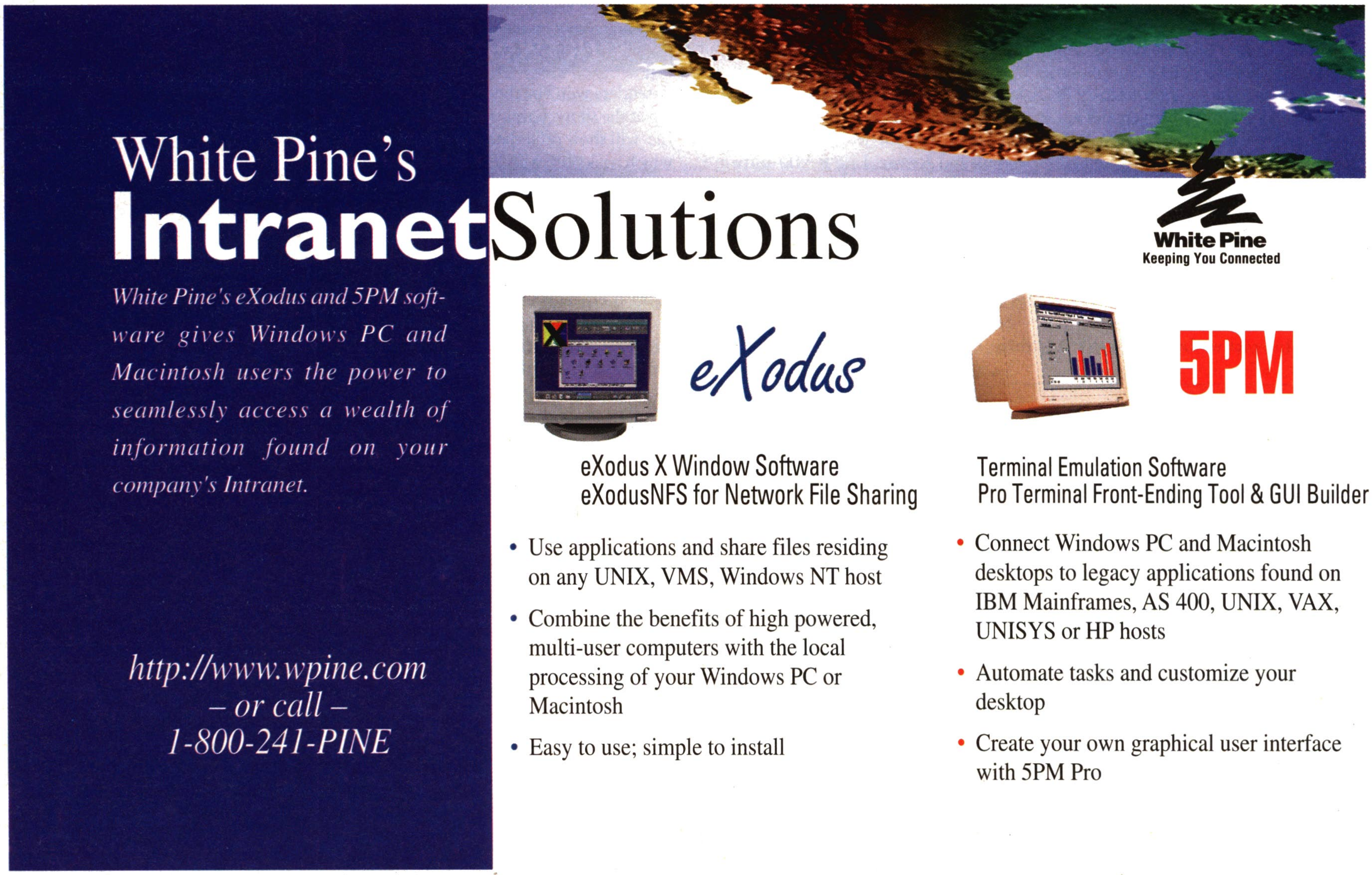
Apple exec's expo guide

No, No Novell: Expo no-show

PowerTalk tabled till Copland

Get your daily dose of Macworld Expo news from the MacWEEK Report, a print edition that will hit the streets Wednesday, Thursday and Friday of the show. The Report will offer up-to-the-minute news, daily product reviews, interviews with industry notables, coverage of show sessions, technical analyses, commentary and Mac the Knife.

And if you don't plan to make it to Boston this week, the MacWEEK Report and additional news will be posted on the Web at http://www.macweek.com and in the MacWEEK forum on CompuServe.



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WEB/DATABASE MAGIC

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The power of Web/database connectivity at your fingertips
Tango is an Intranet Rapid Application Development (IRAD) tool that allows you to quickly integrate your databases and Web servers through a visual drag and drop environment—without learning C/C++, AppleScript or Perl. This opens up a world of opportunities: from on-line shopping systems, product catalogs and event registration, to telephone books, corporate manuals and training material.

Go from dull to dynamic in minutes
Why take days or even weeks creating Web applications? Tango lets you dramatically slash development time so you can accomplish in minutes what traditionally took weeks to complete. The result? You'll be able to get powerful, interactive applications up and running in less time. Tango connects to all popular databases, including Oracle, Sybase, Informix, Butler SQL and **FileMaker Pro**. And, it offers cross-platform functionality so you can deploy your Web application in practically any computing environment.

Tango for FileMaker and Tango Enterprise
Choose from two versions of Tango: Tango for FileMaker, the only IRAD tool that lets you visually build dynamic Web sites using your FileMaker Pro database; and Tango Enterprise, the same full-featured IRAD tool, but for all other computing and database environments. Both offer the advanced features you need:

- Graphical development environment to create Web-based applications.
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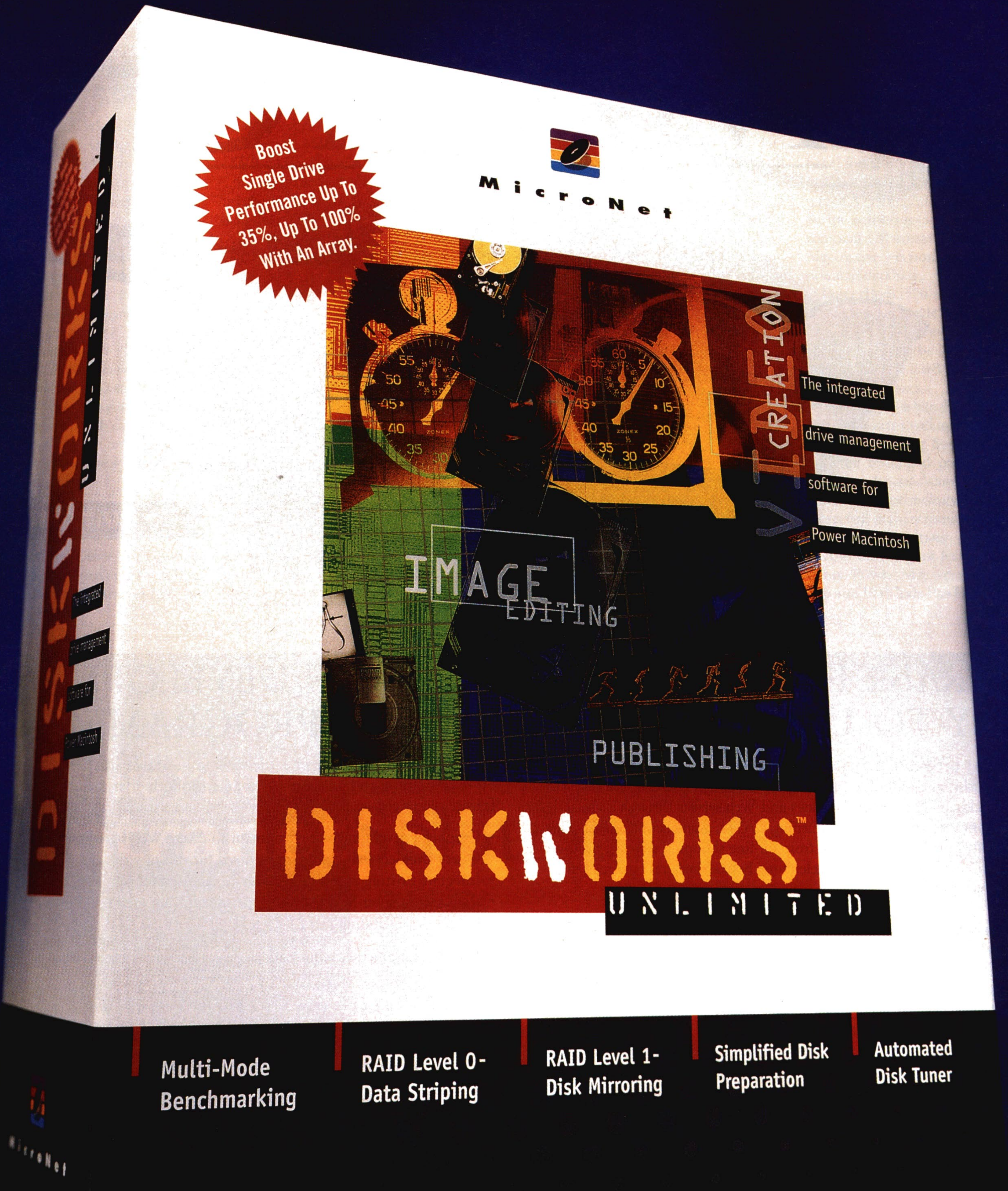
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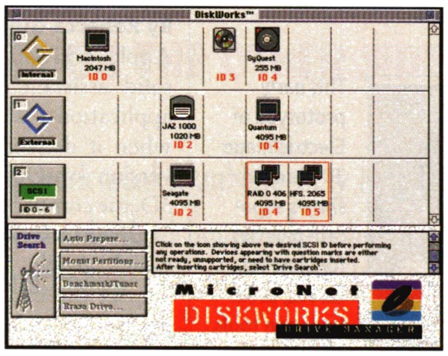
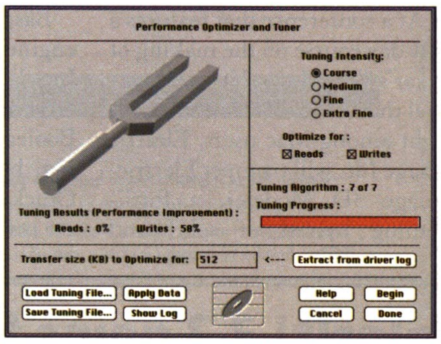
Now you can tune your SCSI based removable, optical or hard drives to truly deliver their utmost. With DiskWorks™ drive management software from MicroNet you'll be getting every drop of potential available. With a few simple clicks you can accelerate single drive performance up to 35% beyond factory settings. Over 100% with arrays. Our easy-to-use interface makes advanced disk prep and management functions a snap. The innovative DiskWorks Automated Tuner lets you fine-tune your drives not only to your CPU, but to the type of work you do. So now you can noticeably enhance the performance of Digital Video, Imaging, Server or any other disk-intensive application. There's even an intelligent I/O monitor that automatically logs your daily operation, providing a valuable record that DiskWorks uses to optimize your drive's performance. The Automated Tuner also lets you power tune drives or arrays on-the-fly. You can even save settings and apply them whenever you want. Drag-and-drop flexibility makes preparing, tuning and configuring single drives and striped (RAID 0) or mirrored (RAID 1) volumes easier than ever. Step-by-step custom partitioning allows users to mix different RAID levels and HFS volumes on the same disks. Sophisticated management tools allow the monitoring of RAID status and rebuilding of mirrors in the foreground *or* background. You won't find better drive management software anywhere. So just call 800-800-DISK to order—and tell them you want "the works." DiskWorks.


DiskWorks™
0
Internal
Macintosh 2047 MB ID 0
ID 3
SyQuest 255 MB ID 4
1
External
JAZ 1000 1020 MB ID 2
Quantum 4095 MB ID 4
2
SCSI
ID 0-6
Seagate 4095 MB ID 2
RAID 0 406 4095 MB ID 4
HFS. 2065 4095 MB ID 5
Drive Search
Auto Prepare...
Mount Partitions...
Benchmark/Tuner
Erase Drive...
MicroNet
DISKWORKS
DRIVE MANAGER

Click on the icon showing above the desired SCSI ID before performing any operations. Devices appearing with question marks are either not ready, unsupported, or need to have cartridges inserted. After inserting cartridges, select 'Drive Search'.


Performance Optimizer and Tuner
Load Tuning File...
Save Tuning File...
Apply Data
Show Log
Help
Begin
Cancel
Done
Extract from driver log

Tuning Intensity:
● Course
○ Medium
○ Fine
○ Extra Fine

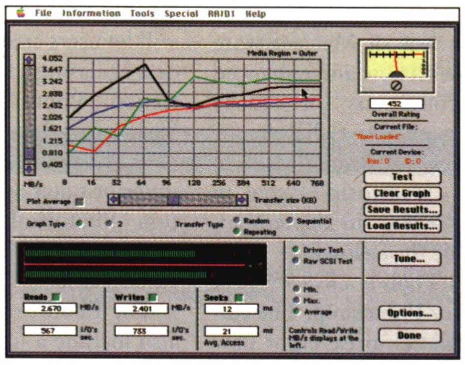
Optimize for :
☒ Reads ☒ Writes

Tuning Algorithm : 7 of 7

Tuning Progress :

Tuning Results (Performance Improvement) :
Reads : 0% Writes : 58%

Transfer size (KB) to Optimize for: 512


File
Information
Tools
Special
RAID1
Help
Media Region = Outer
4.052
3.647
3.242
2.838
2.432
2.026
1.621
1.215
0.810
0.405
MB/s
8
16
32
64
96
128
256
384
512
640
768
Transfer size (KB)
Plot Average
Test
Clear Graph
Save Results...
Load Results...
Tune...
Options...
Done

452 Overall Rating

Current File: "None Loaded"

Current Device: Bus : 0 ID : 0

Graph Type ● 1 ○ 2

Transfer Type ○ Random ○ Sequential ● Repeating

● Driver Test
○ Raw SCSI Test

Reads 2.670 MB/s 567 I/O's sec.

Writes 2.401 MB/s 733 I/O's sec.

Seeks 12 ms 21 ms Avg. Access

○ Min.
○ Max.
● Average
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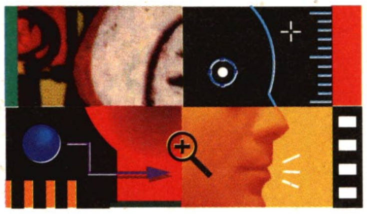


Avid Cinema makes video editing fast. See Reviews, Page 83.

Mac multimedia, 3-D to heat up Siggraph

Hybrid modeler for ElectricImage

By Kelly Ryer

The slow-paced southern summer will meet the high-speed world of computer graphics in New Orleans this week when Siggraph 96 arrives in town.

Apple will set the pace at the graphics show with QuickTime 2.5, available now on the company's Web site, and a demonstration of QuickDraw 3D 1.5 (see story, right).

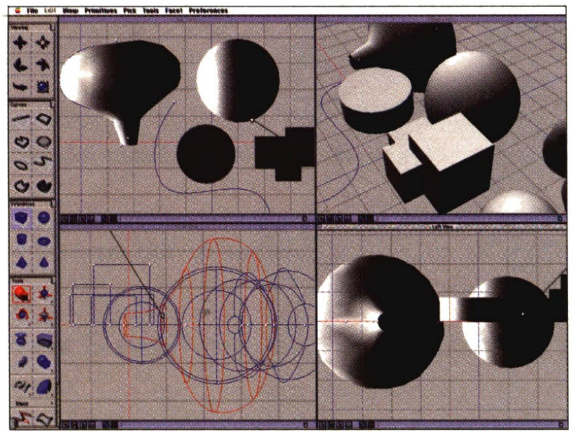
At a conference that features a full-day course on the making of Pixar's "Toy Story," it's only natural that 3-D will claim the spotlight among Mac users. Electric Image Inc. will trumpet ElectricImage 3D Modeler, a forthcoming hybrid of solid and NURBS (non-uniform rational B-splines) modelers.

Based on the ACIS geometry engine from Spatial Technology Inc., Electric Image's modeler offers solid and surface modeling, Boolean operations, surface editing, blending, and support for QuickDraw 3D RAVE. Models are resolution-independent.

The $995 modeler will be integrated into the next version of the ElectricImage Animation System.

Several Mac newcomers will also debut. NewTek Inc. will demonstrate LightWave for the Power Mac, due to ship in October for $1,495 (see 04.29.96, Page 12). Like current versions for

See Siggraph, Page 18



This early prototype of ElectricImage 3D Modeler shows separate palettes for viewing, curves, primitives and tools. The modeler creates resolution-independent objects.

QuickDraw 3D 1.5 to plug in renderers

By Rebecca Gulick

Apple will offer some solid assistance to 3-D application developers when it delivers a new version of QuickDraw 3D, the company said.

QuickDraw 3D 1.5, which Apple said will ship at the end of September, will add support for Windows 95 and Windows NT.

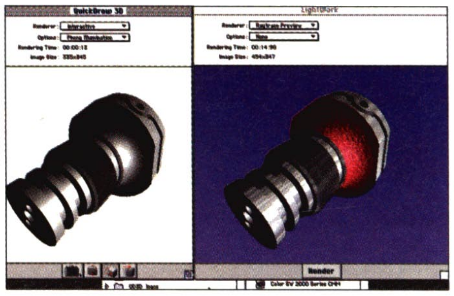
In addition, it will feature a new, extensible object architecture and accept plug-in renderers to complement its built-in interactive renderer. The company will also provide an API that will let developers create plug-ins based on their own renderers.

"QuickDraw 3D will be the only 3-D technology available on Mac or Windows that lets users plug in high-quality ray-tracing renderers," said Sean Safreed, QuickDraw 3D product manager .

According to industry sources, 3-D developers such as Specular International Ltd., Strata Inc., Macromedia Inc. and Vertigo Technology Inc. plan to support QuickDraw 3D's interactive renderer in future upgrades.

QuickDraw 3D 1.5 will include trimesh geometry, a performance-enhancing data type based on tri-

See QuickDraw 3D, Page 18



QuickDraw 3D 1.5 will sport an extensible architecture that supports plug-in renderers to enhance its own interactive renderer. An API will let developers turn renderers into plug-ins.

ColorIt! 3.2 gains formats

By Rebecca Gulick

MicroFrontier Inc. this week plans to give Boston's Macworld Expo show goers a plethora of formats with the latest iteration of its image-editing software.

Color It! 3.2 is due to ship at the show for an introductory price of $20, compared with its regular $149.95 price tag. The new version can read and write JPEG as well as transparent and interlaced GIF formats, and it reads the Kodak Photo CD ImagePac format. Color It! 3.2 also handles TIFF and LZW files.

Version 3.5 of Color It!, due to ship later this year for $149.95, will feature layers that resemble Adobe Photoshop's as well as an alpha channel for PICTs, the company said. Version 3.5 will also support Adobe Photoshop 3.0 plug-ins and will read and write in Photoshop 3.0 file format.

At expo, MicroFrontier also plans to show two new pattern libraries, Web Backgrounds and Wild Things, which comprise 160 patterns each. The two new libraries and the four existing volumes of patterns cost $9.95 each.

MicroFrontier Inc. of Des Moines, Iowa, can be reached at (515) 270-8109 or (800) 388-8109; fax (515) 278-6828; http://www.microfrontier.com; mfrontier @aol.com.

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Color It! 3.2 supports JPEG, transparent and interlaced GIF, Photo CD, TIFF, and LZW formats.

Extensis tools tap into text, Web

By Matthew Rothenberg

Extensis Corp. this week will stretch its line of Mac software modules with new and enhanced plug-in collections for Adobe Photoshop and QuarkXPress.

The new software, slated to debut at Macworld Expo in Boston and ship in September, will include the following:

▸ **PhotoTools** is a $99.95 set of plug-ins for Photoshop. The collection will comprise eight new modules.

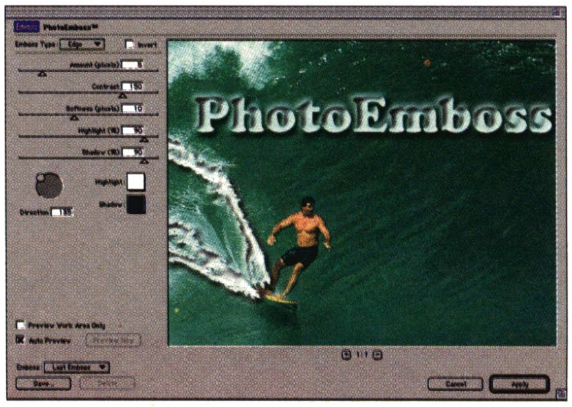
PhotoTools will feature PhotoText, a module that will offer users a variety of text controls, including character-level styles, leading, tracking and kerning, and unlimited text colors. The software will support multiple text blocks; it will let users export text with most formatting intact or return text to Photoshop as a selection so users can apply additional filters.

PhotoShadow will speed the creation of drop shadows based on any selection, and PhotoGlow will let users create a solid stroke or a radiating glow around a selection. PhotoBevel will offer four shapes that users can employ to create beveled edges on the inner or outer surface of a selection. PhotoEmboss will enable users to generate a range of cutout, emboss and relief effects.

The PhotoTools package will also include a limited version of Intellihance, Extensis' $99.95 image-enhancement plug-in that automatically optimizes saturation, sharpness, contrast and brightness, and despeckling.

The software's PhotoBars module will let users create custom tool bars for any Photoshop command. Finally, PhotoTools will come with PhotoTips, a collection of more than 200 onscreen tips for Photoshop users.

See Extensis, Page 18



Smooth sailing: PhotoTools' PhotoEmboss module will let users generate a range of cutout, emboss and relief effects.

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QuickDraw 3D

From Page 16

angles instead of quadrilateral polygons. While the current version of the software requires third-party developers to convert from their own geometry to QuickDraw 3D, trimesh geometry will let them go straight to a renderer, Apple said.

"There is no penalty in using QuickDraw 3D now in existing applications," said Shawn Hopwood, Apple manager of interactive media evangelism.

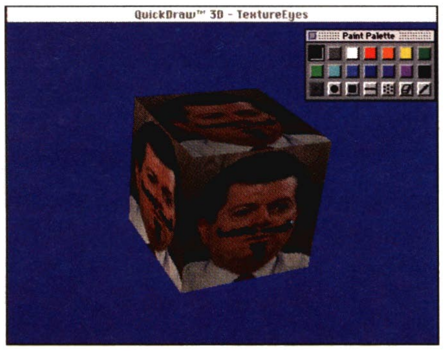
According to Hopwood, trimeshes in "immediate mode" will speed performance tenfold.

QuickDraw 3D's picking capabilities will be revised in the update. A uv picking feature within the API will allow developers to offer 3-D painting capabilities, so users can paint directly on 3-D objects within their applications.

The 3-D painting capability supported by the new version echoes those promised for Fractal Design Corp.'s forthcoming Detailer and Positron Publishing Inc.'s MeshPaint (see 07.29.96, Page 1).

A Level-of-detail plug-in will render distant objects faster by simplifying their geometries. The level of detail can be controlled by the individual 3-D application, Apple said.

QuickDraw 3D 1.5 will support file references in 3DMF (3-D metafile format), so one model can draw elements such as texture maps or colors from other files.



Cubed: Version 1.5 of Apple's QuickDraw 3D API will feature uv picking, which will enable developers to add 3-D painting capabilities to their applications.

In addition to bug fixes and improved stability, Version 1.5 will add new primitives, including ellipsoid, cone, cylinder and torus shapes. It will feature enhancements to the viewer library, Apple said.

Version 1.5 will also support multiprocessing CPUs, which will noticeably improve performance when working on large data sets, Apple said.

Apple said developers have been supportive of its decision to bypass Version 1.1 and head straight for 1.5.

Future versions of the system extension will support plug-in shaders, geometry types and I/O options and will feature 3DMF animations that save object, time-based and texture-map movement data within a 3DMF file. □

Broderbund to purchase T/Maker

Edutainment software company Broderbund Software Inc. last week announced its plans to buy popular clip-art developer T/Maker Co. from Deluxe Corp., T/Maker's parent company, for an undisclosed sum.

Founded by current Apple Vice President of Developer Relations Heidi Roizen, T/Maker will remain in Mountain View, Calif., and keep its staff of about 40 employees, according to Broderbund.

T/Maker, which holds exclusive rights to more than 500,000 electronic art images, will become a wholly owned subsidiary of Broderbund, which is based in Novato, Calif.

The purchase agreement was filed with the Federal Trade Commission and the Department of Justice, whose approval is pending, Broderbund said. □

Siggraph

From Page 16

Windows and a variety of Unix platforms, LightWave for the Power Mac will include metaballs, MetaNURBS and support for QuickDraw 3D shading.

Positron Publishing Inc. will ship a Mac version of MeshPaint, a $599 package that lets users paint directly onto 3-D objects (see 07.29.96, Page 1). Also picking up the 3-D paintbrush will be Detailer, due to ship in September from Fractal Design Corp.

Strata Inc. will show off Version 2.0 of Studio Pro 3-D (see 07.15.96, Page 1). Strata will also announce a higher-end version of VideoShop, the company's newly acquired video-editing tool. Strata VideoShop Professional will support Truevision Inc.'s Targa 2000 boards.

Radius Inc. arcs back to acceleration with the unveiling of its Radius Thunder 3D graphics card. Based on 3Dlabs Inc.'s Glint 500TX, the Thunder 3D will take advantage of Apple's QuickDraw 3D RAVE API.

Minolta Corp. will reportedly offer sneak previews of a prototype 3-D digital camera.

Acuris Inc. will announce its acquisition of 3-D file translators from Inner Space Labs Inc. The translators will cost $99 each. Hash Inc. will ship Version 4.04 of its $199 Martin Hash's 3D Animation package; the upgrade will include Blobby Particles and Dynamics, two features from the company's $699 Animation Master application.

Multimedia authoring applications will also vie for attention. mFactory Inc. will slash the price of its mTropolis authoring package to $1,195, down from $4,995. The company will demo mTropolis 1.1, a faster version that supports QuickTime VR.

Linker Systems Inc. will show The Animation Stand/MultiMedia, a $295 limited-resolution version of The Animation Stand, its 2-D animation package.

Video-editing company Data Translation will announce Media 100 le, a video system due in November for less than $10,000.

Web-minded Siggraph show goers will get to listen in on the latest Shockwave component from Macromedia Inc. The company's plug-in Xtras for SoundEdit 16 and Director create compressed streaming audio for the Web (see 07.29.96, Page 14).

ParaGraph International will announce a Mac version of Virtual Home Space Builder. Due in the fourth quarter, the application will use VRML 2.0 to create virtual-reality 3-D spaces for the Internet.

Transoft Technology Corp. will introduce its StudioBoss FC line of digital networks. Based on the FibreChannel standard, the networks can transmit 100 Mbytes of data per second. Systems cost $4,995 per seat. □

Extensis

From Page 16

▸ **CyberPress,** Extensis' $149.95 QuarkXTension, generates an HTML file from any document created with XPress 3.31 or later, the company said.

The software will offer users a list of a document's contents and then will let them select the elements they want to convert for the Web. The software will translate graphics into GIF or JPEG images and save text as HTML or as an image file.

Extensis said CyberPress will be able to convert tables, tab-delimited text and bulleted lists into the formats supported by Netscape Navigator 2.0.

CyberPress will also be bundled with Adobe PageMill 2.0, the Web-page creation application from Adobe Systems Inc. of Mountain View, Calif.

Extensis said it created CyberPress with Astrobyte LLC of Denver, the developer of BeyondPress (see 04.22.96, Page 8). CyberPress users can upgrade to BeyondPress 2.0 for $449.

▸ **QX-Tools 2.0,** $99.95, will feature five new XTensions.

QX-Effects will help users create drop shadows, bevels and other type effects.

With QX-FindChange, users will be able to search and replace character or paragraph attributes, including colors, character styles, rules or borders throughout a document. QX-CopyStyles will allow them to duplicate specific characteristics of a text or picture box. QX-FineTune will speed the formation of various text selections via floating palettes.

QX-Tools 2.0 will also include QX-SmartBars, an enhanced version of the original package's QX-Bars that automatically generates a tool bar based on the user's most frequently used commands.

Upgrades will be $49.95 for current QX-Tools users or free to users who purchased the package after Aug. 1.

Extensis Corp. of Portland, Ore., can be reached at (503) 274-2020 or (800) 796-9798; fax (503) 274-0530; http://www.extensis.com. □

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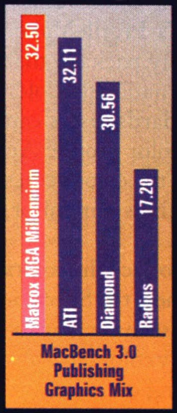

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MacBench 3.0 publishing graphics mix test performed on Power Mac 9500/132 with 40MB of RAM @ 1152 x 870 in 16.7 million colors with Matrox Millennium for PCI Power Mac, Diamond Javelin, ATI Xclaim and Radius Thunder 30/1600.

Polaroid scanner shooting for SOHO

By Connie Guglielmo

Polaroid Corp. this week will deliver a petite new scanner designed for digitizing snapshots.

The PhotoPad, slated to make its Macintosh debut this week at Macworld Expo in Boston, is aimed at small-office, home-office users as well as Web designers looking to generate low-cost digital art.

The $299 device measures 6 by 5 by 3.5 inches. It scans black-and-white, gray-scale, and eight-bit-color reflective images measuring up to 4 by 6 inches, Polaroid said.

The scanner is based on a CCD (charge-coupled device) array that can capture images in a single pass at a maximum resolution of 400 dpi, according to the company. Each scan takes about one minute.

The PhotoPad connects to the Mac via a serial interface.

The device will ship with SuperColor, proprietary software that includes color-correction capabilities as well as one-click controls for scanning, cropping a preview image, and lightening or darkening photos before scanning.

Polaroid's diminutive PhotoPad scans black-and-white, gray-scale, and eight-bit-color prints measuring up to 4 by 6 inches.

Macworld attendees will be able to purchase the PhotoPad for $199, Polaroid said.

Polaroid Corp. of Cambridge, Mass., can be reached at (617) 386-2000 or (800) 662-8337; fax (617) 386-6526; http//:www.polaroid.com. □

Gretag devices measure color

By Connie Guglielmo

Gretag Color Control in July shipped a pair of measurement devices designed to take the headache out of color management.

The SpectroLino and SpectroScan both speed the generation of device profiles for ColorSync 2.0, the current version of Apple's system-level color-management extensions. Each Gretag device sells for $4,750.

The SpectroLino is a handheld spectrophotometer that can attach to a monitor via a suction cup to measure color values. When used with Gretag's ProfileMaker software or any third-party package that conforms to ICC (International Color Consortium) profile standards, users can easily create an accurate color profile. An ICC color profile contains the color values of a particular device, such as a monitor, scanner or printer.

Users who want to reproduce the colors in printed output can connect the SpectroLino to the SpectroScan, a scanner that automatically generates an x-y color table of a scanned image by capturing emissive and reflective data, then generating color profiles and tables.

The devices work with Macs equipped with a minimum 32 Mbytes of RAM. Each connects to the Mac via a serial interface.

Users who want to purchase a complete color-calibration system can buy the SpectroLino, SpectroScan and ProfileMaker software for $16,000. Users can also purchase a $12,500 bundle that includes both devices and CMYK conversion software.

Gretag Color Control of Chicopee, Mass., can be reached at (413) 593-6900 or (800) 880-3088; fax (413) 593-3577. □

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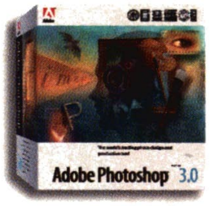
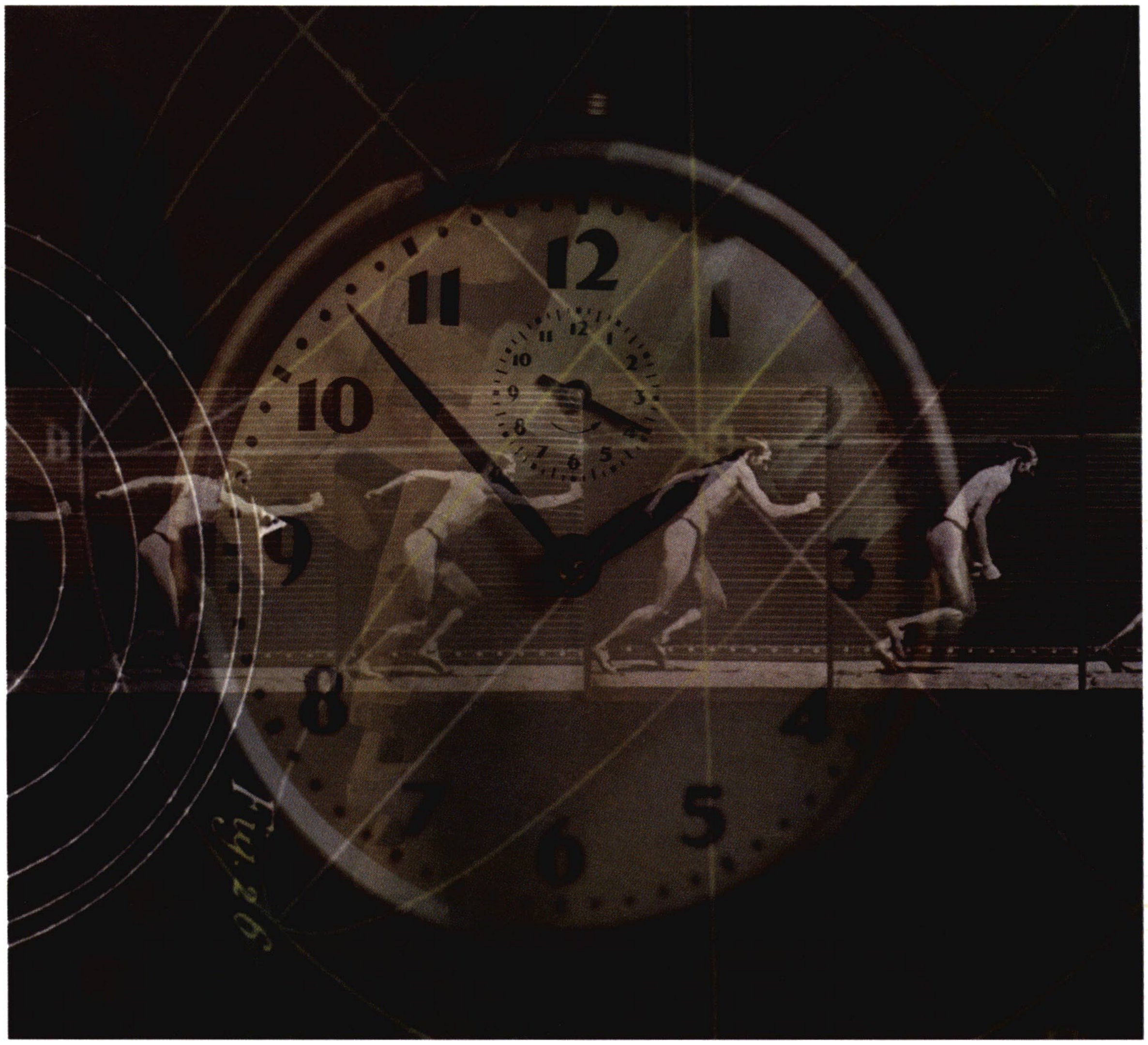
(Kevin Irby on Adobe® Photoshop®)





Artist, Kevin Irby mixed contemporary and archival images to enter a whole new dimension. His tool of choice: Adobe Photoshop. "The cool thing about Photoshop," says Irby, "is that the tools really give you a running start. Using filters, I created a smooth harmony between the two main images. Layers helped me experiment and tweak the work to get the effect I was looking for." In fact, any graphic artist who can work with a computer can easily work with Photoshop. If you want to jump start your work, whether it's print, the Web, or CD-ROMs, add Adobe Photoshop to your essential list of tools. For more information, call 1-800-492-3623 Extension H3377, or visit us at http://www.adobe.com.

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System 7.5 Update 2.0 from Apple Computer. Now you can get the most from your Mac with Apple's free update for System 7.5 users. This update will improve overall stability and performance and, if you use Virtual Memory on your PowerMac,™ launch your applications up to four times faster than ever before.

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described on the opposite page, please visit **//www.microsoft.com/macoffice/**. Or to order a free Microsoft Empowerment Pack for the Mac, which includes the software listed above on a CD-ROM plus a special offer on RAM from Kingston Technology, call 800-469-6520 Dept. MCA.

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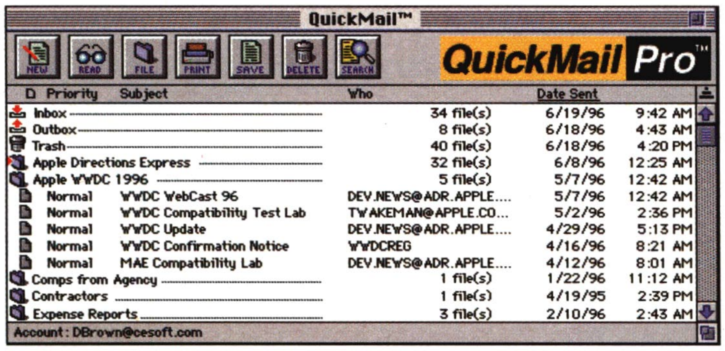
The Internet goes back to school
See Solutions, Page 85

QuickMail to go POP

Mac mail system preps for Internet

By Joanna Pearlstein

Moving to take Qualcomm Inc.'s Eudora and Claris Corp.'s Emailer head-on, CE Software Inc. is readying an Internet-ready version of QuickMail, the company's e-mail system. CE said it will detail these plans at this week's Macworld Expo in Boston.



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	Trash			40 file(s)	6/18/96	4:20 PM
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	Normal	WWDC WebCast 96	DEV.NEWS@ADR.APPLE....		5/7/96	12:42 AM
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	Normal	MAE Compatibility Lab	DEV.NEWS@ADR.APPLE....		4/12/96	8:01 AM
	Comps from Agency			1 file(s)	1/22/96	11:12 AM
	Contractors			1 file(s)	4/19/95	2:39 PM
	Expense Reports			3 file(s)	2/10/96	2:43 AM

Account: DBrown@cesoft.com

CE Software's QuickMail Pro, a POP client, will maintain the interface from its older sibling and offer users In and Out boxes and folders for storing messages.

This move will trisect the QuickMail landscape. The new line will include the current version, to be called QuickMail LAN, which is based on proprietary technology; a new product, QuickMail Pro, based on Post Office Protocol 3 (POP 3); and QuickMail POP, a slimmed-down version of QuickMail Pro that the company will distribute free.

In a departure from the company's previous offerings, CE will not ship a server for QuickMail Pro.

Due this fall, QuickMail Pro will support scripting via Apple events and will include several features from the current version of QuickMail, including graphical forms, spell checking, mail filtering and searching. If an e-mail message is sent from one QuickMail Pro user to another via the Internet, the message's forms will be preserved, CE said. Like other Internet e-mail programs, the Pro version will automatically encode and decode attachments.

QuickMail Pro will store messages in In and Out boxes and will keep copies of sent mail in a local folder. The Pro version will send and receive mail in the background, leading to a significant speed increase, CE said.

QuickMail Pro will support SMTP (Simple Mail Transfer Protocol); a version supporting IMAP (Internet Message Access Protocol) will ship in January.

Ethan Bunker, personal com-

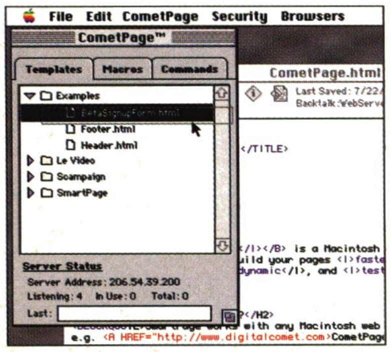
See QuickMail, Page 26

Digital Comet aims at Web

By Marty Cortinas

Digital Comet Inc. hopes to bring Web-page creation down to earth with CometPage and CometSite, a pair of authoring tools released to public beta testing last week.

CometPage, priced at $79, lets users move templates, macros or commands into any text or HTML editor that supports Macintosh Drag and Drop to quickly build Web pages. Macros are lines of code designed to be replaced on the fly by CometSite; commands are HTML extensions for hiding, showing or inserting data depending on specified criteria.



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</TITLE>
</I></B> is a Macintosh
uild your pages <I>faste
dynamic</I>, and <I>test
</H2>
with any Macintosh web
e.g. <A HREF="http://www.digitalcomet.com>CometPag
```

Digital Comet's CometPage lets users drag and drop HTML elements into any text editor.

Priced at $129, CometSite is a companion CGI (Common Gateway Interface) that scans pages for any macros or commands placed by CometPage and replaces them with the correct information.

Users can download the beta version of CometPage from the company's Web site at http://www.digitalcomet.com. Final versions are expected to ship in September.

Digital Comet Inc. of Sausalito, Calif., can be reached at (415) 331-5551; fax (415) 331-6644.

Web Weaver moves to 2.0

By Joanna Pearlstein

Miracle Software Inc. is adding speed and spell checking to the next version of its Web publishing tool, due this month.

Version 2.0 of World Wide Web Weaver will be the first Power Mac-native incarnation, and it will remove the 32-Kbyte file limit imposed by previous versions.

The $89 package from Miracle (formerly known as Best Enterprises) will sport a revised 3-D interface. Web Weaver's main window will be divided into four sections for a document's title, header, body and footer.

Users will be able to create and modify headers and footers for a set of pages. For example, users who place their company's contact information at the bottom of each page will be able to change a phone number in the footer across all HTML files.

Web Weaver will include a built-in table editor, as well as tools for frames and forms; the company said the program will

See Weaver, Page 26

Roaster Pro to make public debut at expo

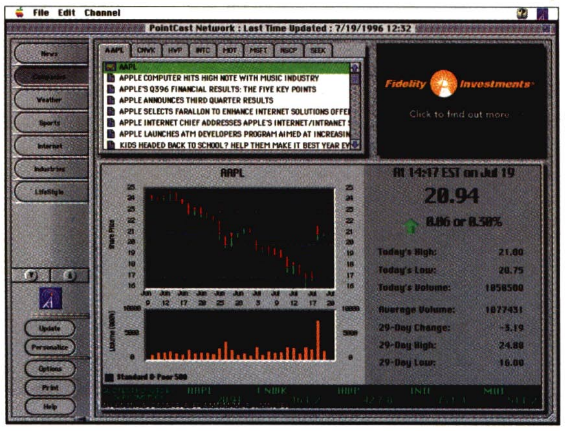
By James Staten

While Java integration still sits on the Mac OS to-do list, Natural Intelligence Inc. is prepping tools to implement stand-alone Java applets on the desktop.

This week's Macworld Expo in Boston will be the coming-out party for Roaster Professional, the first Java development environment for the Mac designed to create stand-alone and desktop applications in Sun Microsystems Inc.'s platform-independent programming language. Natural Intelligence will also ship visual development tools for Roaster 2.1.

In its first public showing, Roaster Pro will resemble its currently shipping sibling but add a new class library that lets Java ap-

See Roaster, Page 26



PointCast Network : Last Time Updated : 7/19/1996 12:32

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Average Volume:	1077431
29-Day Change:	-3.19
29-Day High:	24.88
29-Day Low:	16.00

This just in: With the Mac client for the PointCast Network, users will be able to read news, business, sports and weather from their desktops free.

PointCast news service to make Mac delivery

Free screen saver crosses platforms

By Joanna Pearlstein

At this week's Macworld Expo in Boston, Mac news hounds will be able to glimpse PointCast, the Internet news service long-available on Windows.

PointCast Inc. will be demonstrating the Mac client for its PointCast Network, an Internet application and Web browser plug-in that brings news to a user's screen.

A Power Mac-only beta version is expected in early fall; the final version, due in both Power Mac and 680x0 incarnations, will ship later this fall. Financed by advertising, the PointCast service and software are free to end users.

In the PointCast application, users will create a profile for receiving customized news. The product's SmartScreens function will act as a screen saver by displaying news when the computer is not in use. A user will also be able to employ the Netscape Navigator plug-in to view news on demand from within a Web browser.

The service divides news topics into channels, such as News, Companies, Weather, Sports, Internet, Lifestyle and Industries, as well as those for regional newspapers and Time Warner's Pathfinder service. When a user clicks on the Internet channel, PointCast will automatically launch Navigator.

It compiles its news from Reuters; Standard and Poor's Comstock; SportsTicker, an ESPN subsidiary; PR Newswire; Business Wire; and AccuWeather. It also features content from Pathfinder, the Los Angeles Times and the Boston Globe. News from CNN and several other regional

See PointCast, Page 26

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Mark Hall
Editor in Chief
Macweek
July 24, 1995

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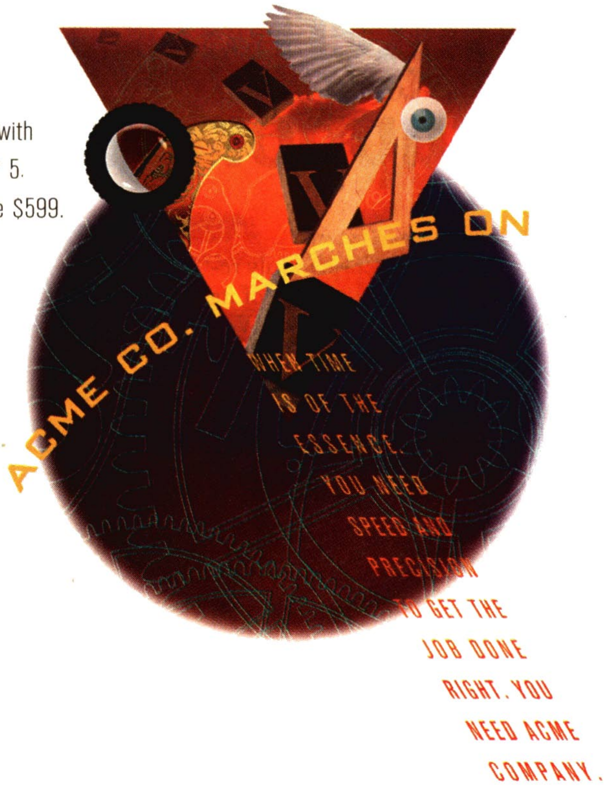
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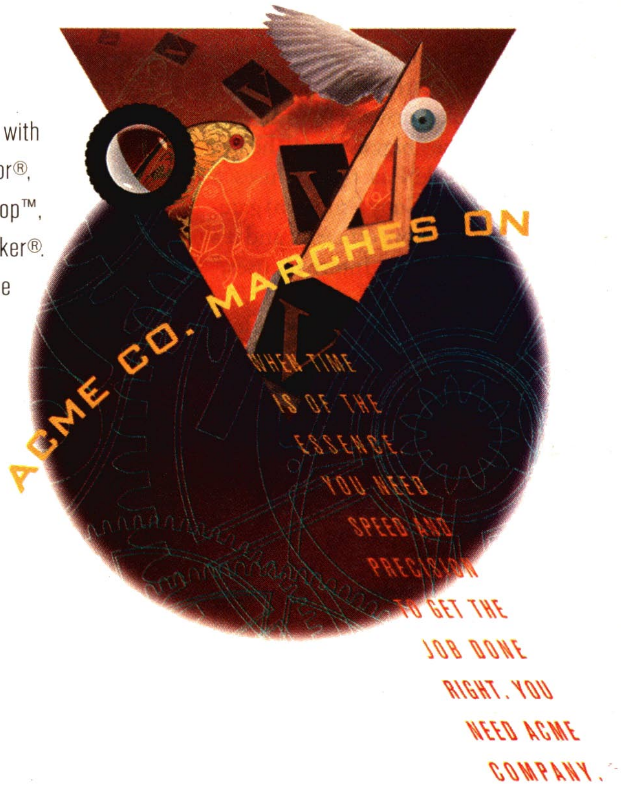
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QuickMail

From Page 24

puter and Internet specialist at Avviso of San Francisco, currently uses QuickMail 3.6 and said he looks forward to installing QuickMail Pro. The "biggest beef" he has with QuickMail LAN is that it uses a UUCP (Unix to Unix Copy Program) gateway. "With POP it's more efficient, and it's the same protocol the Internet uses," Bunker said.

Christian Gurney, CE vice president of product lines, said: "The great thing about POP is that there are so many different choices. We intend to provide a turnkey solution."

CE said it will point customers toward a variety of POP servers for the Mac, Windows and Unix platforms; the company may also sell some products directly.

Pricing for QuickMail Pro has not yet been set.

CE Software Inc. of West Des Moines, Iowa, can be reached at (515) 221-1801 or (800) 523-7638; fax (515) 221-1806; http://www.cesoft.com. □

Weaver

From Page 24

tell users where to place Java code but will not offer any prebuilt applets or scripts.

Unlike other HTML editors, Web Weaver will not provide a full WYSIWYG view: The color and style of text will appear as formatted, but the product will not display in-line graphics.

Version 2.0 will include a limited version of SpellCatcher (formerly Thunder 7) from Casady & Greene Inc. of Salinas, Calif. Web Weaver 2.0 users will be able to upgrade to a full version of SpellCatcher for $35.

Upgrades from previous versions of Web Weaver will cost $35.

Miracle Software Inc. of Potsdam, N.Y., is at (315) 265-0930; fax (315) 265-1162; miracle@miracleinc.com; http://www.miracleinc.com. □

PointCast

From Page 24

newspapers will be added this fall.

The company this month will release Version 1.1 of PointCast for Windows; that version will add compression technology that will decrease download times, PointCast said. The technology will be available in the initial Mac version as well, although the other primary addition in Version 1.1, improved customization options, will be delivered in a later release for the Mac.

PointCast also recently signed a deal with Cambridge, Mass.-based Lotus Development Corp. to bring PointCast news to the next version of Lotus Notes, which will be based on Internet standards.

PointCast Inc. of Cupertino, Calif., can be reached at (408) 253-0894; fax (408) 253-1062; http://www.pointcast.com. □

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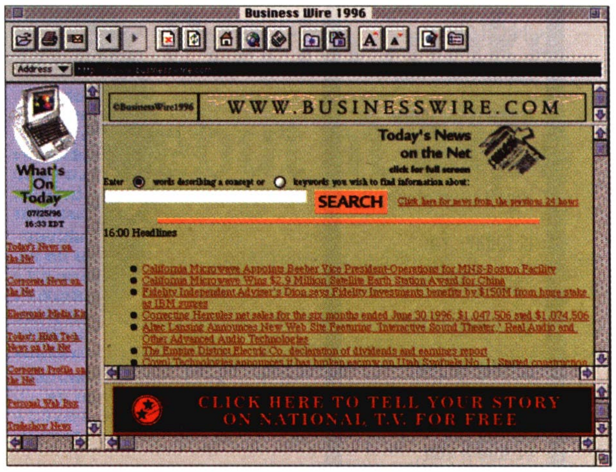
Internet Explorer beta supports HTML frames

By James Staten

Microsoft Corp. in July released a beta version of its Internet Explorer Web browser that adds HTML frames but does not offer ActiveX support.

The public beta of Version 2.1 also includes a built-in QuickTime VR player and the ability to disable frames and Netscape Navigator plug-ins.

Microsoft has enhanced Explorer's Macintosh Drag and Drop support. Users can now drag items from the history file to the favorites list and reorder items in both groups.



The new beta of Microsoft's Internet Explorer 2.1 can display frames, QuickTime VR files and animated GIFs.

New display features in Explorer work with animated GIFs, colored table borders and double-byte characters used in some foreign languages. Users can also change the default font size and the name and location of the browser's cache.

The new beta, however, does not equal the Version 3.0 beta currently available for Windows. That iteration adds built-in Java, ActiveX and a variety of additional features. Microsoft said slow development of ActiveX in the Mac version is the reason a beta of Version 3.0 has not been delivered for the Mac; the company did not say when it would arrive.

America Online Inc. of Vienna, Va., said Internet Explorer Version 2.1 will be built into Version 3.0 of its client for the Mac, which is scheduled to ship in September.

The Internet Explorer 2.1 beta can be downloaded from Microsoft's Web site at http://www.microsoft.com.

Microsoft Corp. of Redmond, Wash., can be reached at (206) 882-8080 or (800) 426-9400; fax (716) 873-0906. □

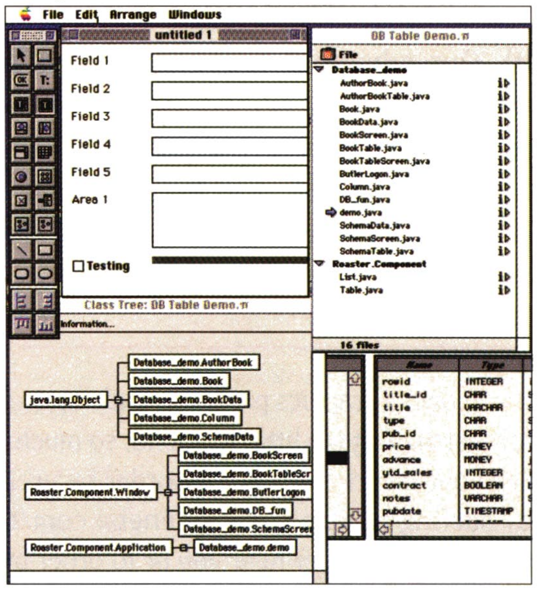
Roaster

From Page 24

plications run without a Web browser. Natural Intelligence said the new Java classes will let experienced coders access low-level, platform-specific commands and integrate an application with other Java or C++ components.

The environment will offer application builders a visual canvas for creating program interfaces and customized tool palettes that can be filled with real-time objects. Natural Intelligence said Roaster Pro will also provide tools that improve database integration and coordinate team software development.

Roaster Pro's extensive Macintosh Drag and Drop support will let developers drag code fragments directly from the desktop or other programs. The tools will come with a just-in-time (JIT) compiler that provides near-C++ execution time, Natural Intelligence said.



Database_demo
AuthorBook.java
AuthorBookTable.java
Book.java
BookData.java
BookScreen.java
BookTable.java
BookTableScreen.java
ButlerLogon.java
Column.java
DB_fun.java
demo.java
SchemaData.java
SchemaScreen.java
SchemaTable.java
Roaster.Component
List.java
Table.java

Database_demo.AuthorBook
Database_demo.Book
Database_demo.BookData
Database_demo.Column
Database_demo.SchemaData
Database_demo.BookScreen
Database_demo.BookTableScr
Database_demo.ButlerLogon
Database_demo.DB_fun
Database_demo.SchemaScreen
Database_demo.demo

Name	Type
rowid	INTEGER
title_id	CHAR
title	VARCHAR
type	CHAR
pub_id	CHAR
price	MONEY
advance	MONEY
ytd_sales	INTEGER
contract	BOOLEAN
notes	VARCHAR
pubdate	TIMESTAMP

Roaster Professional will include a new class library that will let developers tie applets to low-level, platform-specific functions or existing applications written in C++. The bottom window shows some of the new classes.

The company said Roaster Pro is slated for release in the fall; pricing has not been set.

Natural Intelligence said it will not neglect users of its non-Pro Roaster product. The company will ship at expo visual development tools for Roaster 2.1 that let developers build applets in a WYSIWYG interface. In July, the company shipped a debugger and JIT for Roaster 2.1.

The company said the new tools will be free to existing Roaster users. Roaster 2.1 is priced at $129.

Natural Intelligence Inc. of Cambridge, Mass., is at (617) 876-4876; fax (617) 492-7425; info@natural.com; http://www.natural.com. □

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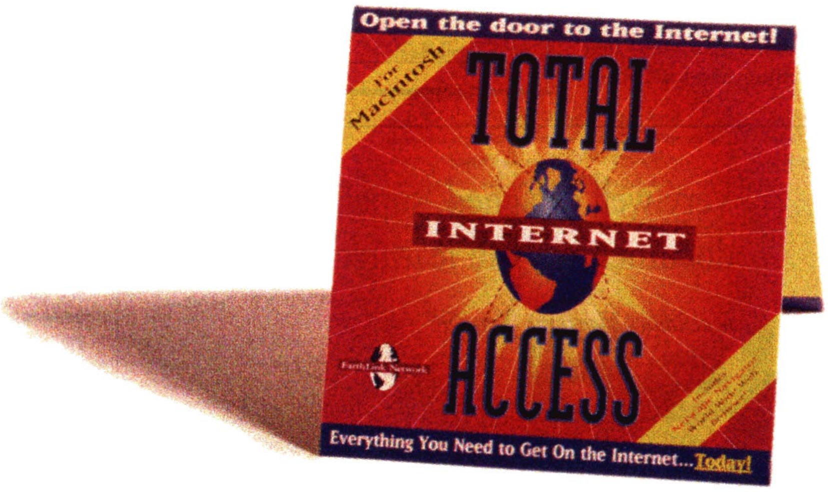
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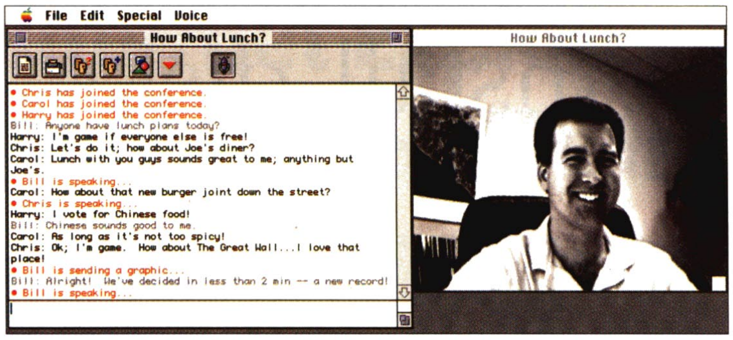
Mainstay users to chat

By Joanna Pearlstein

Mac networks are about to get chattier. At Macworld Expo this week in Boston, Mainstay will ship ChitChat, a client-server package for conferencing over networks.

Sporting an interface similar to that of America Online's chat rooms, ChitChat will let users on an AppleTalk network contribute text messages and graphics to conferences. The product will also transmit speech; users who want to speak over ChitChat will need a microphone.

Conference participants will view text contributions in a scrolling window, while graphics will be displayed in a separate window. Users will be able to participate in multiple conferences simultaneously, the company said.



```
• Chris has joined the conference.
• Carol has joined the conference.
• Harry has joined the conference.
Bill: Anyone have lunch plans today?
Harry: I'm game if everyone else is free!
Chris: Let's do it; how about Joe's diner?
Carol: Lunch with you guys sounds great to me; anything but
Joe's.
• Bill is speaking...
Carol: How about that new burger joint down the street?
• Chris is speaking...
Harry: I vote for Chinese food!
Bill: Chinese sounds good to me.
Carol: As long as it's not too spicy!
Chris: Ok; I'm game.  How about The Great Wall...I love that
place!
• Bill is sending a graphic...
Bill: Alright!  We've decided in less than 2 min -- a new record!
• Bill is speaking...
```

Mainstay's ChitChat is a conferencing tool for AppleTalk that will display a scrolling window for a conference's text and a separate window for transmitted graphics.

ChitChat will save and print text or graphics from conferences. It will store and quickly paste frequently used phrases through the PowerType function.

The client version will run in the background and require 512 Kbytes of RAM. Mainstay said the server will need about 1 Mbyte of RAM and require no administration.

The product will run over LocalTalk, Ethernet and 14.4-Kbps Apple Remote Access connections. The company said an Internet version is in the works and should be released by the end of the year.

A five-user server will cost $99 and a 25-user server will cost $349. The client is free.

Mainstay of Camarillo, Calif., can be reached at (805) 484-9400; fax (805) 484-9428; mainstay1@aol.com; http://www.mstay.com. □

Farallon gains 26% in first public quarter

By Joanna Pearlstein

In its first quarter as a publicly traded company, Farallon Communications Inc.'s revenues grew 26 percent compared with the same quarter in the previous fiscal year.

In July, the company reported overall revenues of $15.6 million for the quarter ended June 30. This compared favorably to revenues of $12.4 million for the third quarter in 1995. Net income for the quarter was $360,000, compared with $23,000 in the year-ago quarter.

Farallon, of Alameda, Calif., attributed the increase to sales of its Internet and intranet products, which accounted for 30 percent of the company's revenues. "The Internet is where we've seen tremendous growth," said Farallon CEO Alan Lefkof. He noted that the company's remote-access software, Timbuktu Pro, and ISDN products, such as Netopia, are doing well.

Farallon made an initial public offering in mid-June; the stock has wavered between $11 and $19 per share during its brief time on NASDAQ. On Monday, July 29, the stock closed at $13.13. □

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Network Administrator
Perimeter area financial company needs Novell support specialist to hook up 6 Macs to a token ring network.
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Chicago, IL

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Job# 10767 — $35K/year

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Job# 10835 — $45-55K/year

Cleveland, OH

System Engineer
Design, install, support, maintain and troubleshoot Macintosh based networks. Strong communication, organizational and problem solving skills required.
Job# 990 — $35-45K/year

Help Desk Specialist
Individual needed for entry level position. Install s/w, h/w. Train users and provide support for WordPerfect for Windows. Basic knowledge of PageMaker and/or Quark, Macintosh experience a plus.
Job# 974 — $18+K/year

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Assistant Web Master
Responsible for design and content of web page for an office supply company in Grand Rapids. Must be fluent with Mac OS, Quark, Photoshop, Illustrator and PageMill.
Job# 41407 — $35-38K/year

Houston, TX

Technical Support
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Job# 58051 — $30-35K/year

Mac/PC Tech
Nationwide company with Novell network needs to assign new users to the network and to e-mail. Move fast, working with Network Manager to handle emergency issues. Moving and setting up new end-user stations.
Job# 51529 — $20-23/hour

Miami, FL

Technical Support
Miami based international computer company is seeking individual with excellent interpersonal skills and knowledge of UNIX and TCP/IP to handle tech support, troubleshooting and customer service. Light sales may be involved. Temp to Perm.
Job# 1238 — $30-32K/year

Technical Support/Help Desk
Miami based international high tech company is seeking 2 individuals for tech support and troubleshooting. Broad software knowledge including MS Office and MS Mail needed. Mac and PC experience required. Working knowledge of Windows NT a plus. Long-term temporary position.
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Growing television production company in Miami area is seeking individual with 2+ years in animation field. Proficiency with Alias and 3-D Studio a must. Permanent position.
Job #1237 — $40-50K/year

Minneapolis, MN

Sr. Network Administrator
Large printing company needs two Mac network administrators. Support end users on-site and over phone with h/w, s/w, & printing issues. Need knowledge of troubleshooting issues related to printing and prepress such as stripping, layout, imposition and imagesetters. Network protocol experience also required.
Job# 5804 — $35-45K/year

Help Desk
Large communications company looking for Windows 95 troubleshooter. Must know and understand compatibility issues with Windows 95 and s/w, printing problems. Work in large IS department as the primary Windows 95 user issues contact.
Job# 5805 — $17-20/hour

Orange County, CA

Database Programmer
Consult on initial stage of a database design project for an automotive aftermarket catalog in Fountain Valley. Client will consider working with all types of PC databases.
Job# 4049 — $30-40/hour

Programmer
C++ for Windows. Work for a full service advertising agency in Irvine.
Job# 3902 — $35K/year

Programmer
C/C++ on Mac. BS in Computer Science/Engineering or minimum 3 years experience required. Located in Irvine.
Job# 3878 — $55K/year

Philadelphia, PA

Network Manager
Mac and Novell. Software and hardware consultation and management. Publishing or DTP background a plus. In Montgomery County.
Job# 5971 — $35-40K/year

HTML Editors
HTML editorial experience necessary. Looking for two people. 2 month assignment starting asap. Netscape experience needed. In Lehigh County.
Job# 6046 — $15-17/hour

On-Line Services Manager
Client relations or management experience a plus. Need heavy knowledge of on-line services and WWW development, especially linkage. Networking experience helpful. Center City Philadelphia. Temp or temp-to-Perm.
Job# 5972 — $18/hour

Philadelphia, PA (cont.)

Network Manager
Troubleshooting MS Office and WordPerfect. Proficiency in Windows 95 and Windows NT a plus. Maintaining and expanding present LAN. Assisting with WWW design and consultation. WWW experience helpful, but not necessary. Permanent position in Chester County.
Job# 5976 — $25-35K/year

WWW Developers
Seeking those technically adept in C or C++ and HTML capable with Perl scripting & CGI experience. OOP will be considered immediately. Mac & Win. Located in Montgomery/Chester counties. Long-term or Temp to Perm positions available.
Job# 6000 — $35-45K/year

Programmer
C or C++, and Pascal. 3+ years experience. Networking background helpful. Code Warrior helpful. AppleShare and TCP/IP experience also a plus. Permanent position located in Philadelphia County.
Job# 5665 — $60-80K/year

Mac/UNIX Technician
Work in electronic prepress dept. Knowledge of C++ and UNIX platforms needed. Helios exposure a plus. Application knowledge should include QuarkXPress, Illustrator, and Photoshop. Hardware and software troubleshooting is involved in this permanent position.
Job# 5712 — $35-40K/year

WWW Designers
HTML and Photoshop proficient designers needed. Corporate experience required. Creative and multimedia backgrounds preferred. Short and long-term opportunities available with this firm in Bucks County.
Job# 5853 — $25-40/hour

Windows Programmers
MS Visual C++ expertise wanted for a young communications software design firm in Delaware County. Creative and interface design experience necessary. Temp and Perm opportunities.
Job# 5973 — $25-40/hour

PC LAN Administrator
Work with MS Access to maintain, update and troubleshoot databases. Windows 95 LAN. Sybase SQL Server. TCP/IP proficiency needed. Temp to perm opportunity in Montgomery County area.
Job# 6077 — $35-45K/year

Phoenix, AZ

Technical Support Specialist
Full-time position located in Tuscon, AZ. Installation, configuration, troubleshooting and repair. Must have minimum of 3 years experience. A degree is required.
Job# 1168 — $30-40K/year

Tech Support/Test Specialist
Full-time position in Phoenix. Must be able to repair film recorders, scanners (flatbed, drum), Nova jet plotters and imagesetters. Will be doing on-site and phone support. Photo lab or imaging lab experience preferred. Dual platform experience a plus.
Job# 1131 — $35K/year

San Diego, CA

Technical Support
Two full time openings requiring 5 years experience providing support via phone, e-mail and fax. Strong Mac OS, software & Internet protocols experience a must. Windows, UNIX and X Windows a plus. Degree preferred.
Job# 1137 — $45K/year

San Francisco, CA

Programmer
Work for an East Bay developer. Need 2-3 years corporate experience writing Mac applications in C/C++. Work with Script Manager, TextEdit, WorldScript, and File manager. Knowledge of Windows API and/or the Mac Toolbox a must.
Job# 48245 — $20/hour

MIS Assistant
For an East Bay pharmaceutical company. Installation, troubleshooting, inventory, & training. Knowledge of Mac OS, Ethernet, AppleShare and MS Office needed. Any experience with Windows or Novell NetWare a plus.
Job# 48266 — $20/hour

PC Technical Support
For small SF consulting firm. Troubleshooting primarily at client sites. Must have good customer service skills and be familiar with Windows 95 and Windows NT.
Job# 48269 — $28K/year

Technical Coordinator
Provide support for Mac and Mac-based DOS systems at a large SF firm. In-depth knowledge of internal Mac architecture needed. Software includes Excel, Lotus Notes, Novell NetWare. Apple Certification Level 1 a plus. Fast-paced environment. Must be able to juggle multiple tasks while communicating effectively.
Job# 58093 — $30-35K/year

Associate Systems Specialist
For South SF biotech firm. Frontline technical support. Cross-platform support for system software and business applications. Must have excellent customer service skills.
Job# 57983 — $15-17/hour

Schaumburg, IL

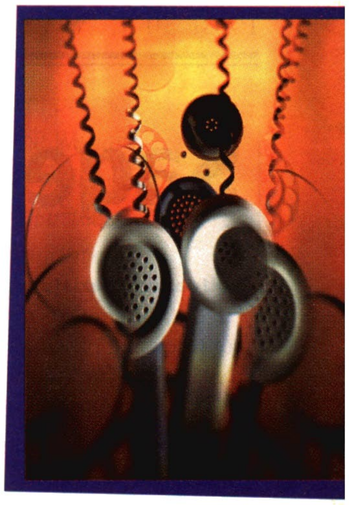
Mac Programmers
2 senior programmers needed. Work in C++. Take DOS-based Internet software and develop a Mac version. Internet knowledge helpful, not critical. Long-term project.
Job# 10527 — $30-50/hour

Computer Administrator
Teach computer skills to 7th & 8th grade private school children. Maintain system software and hardware. Supervise support services and labs. Excellent training and technical experience is key.
Job# 10767 — $35K/year

Seattle, WA

Manager, Content Programming
Oversee development and production of Internet content programming. Define target audience. Articulate product vision. Develop programming slate and schedule. Solicit and acquire on-line programs. Drive marketing, promotional activities for product. Build and maintain partner and supplier relationships as required. Must have excellent grasp of interactive media technologies. Familiarity with production processes and deal structures required. Must have extensive contacts in the media industries.
Job# 61393 — $50-60K/year

Editor In Chief
Manage an international reference/encyclopedia CD-ROM with Internet updates. Knowledge of foreign languages helpful. Six years experience in marketing reference materials needed. Multimedia CD-ROM experience extremely useful.
Job# 48504 — $50-60K/year



Silicon Valley, CA

FileMaker Pro Developer
An event planning company is in need of a database developer. Job duties include design, maintenance, communicating with end users for feedback, and reporting back to the director.
Job# 57997 — $16-20/hour

Technical Support
IS dept. needs an end user support specialist. Diagnose h/w, s/w problems. Install software, troubleshoot, and perform upgrades. LAN experience a plus.
Job# 52152 — $16-20/hour

MIS Coordinator
Real Estate company needs someone with fabulous Mac skills and DOS/Windows knowledge. Work with LAN Servers. Troubleshoot & coordinate station moves. Solid networking knowledge a must.
Job# 48455 — $25-30K/year

Technical Support
Work for a Santa Clara electronics firm. Install Mac h/w and s/w. Troubleshoot for their in-house staff and for their customers around the Bay Area. Windows and UNIX a plus.
Job# 41482 — $16-20/hour

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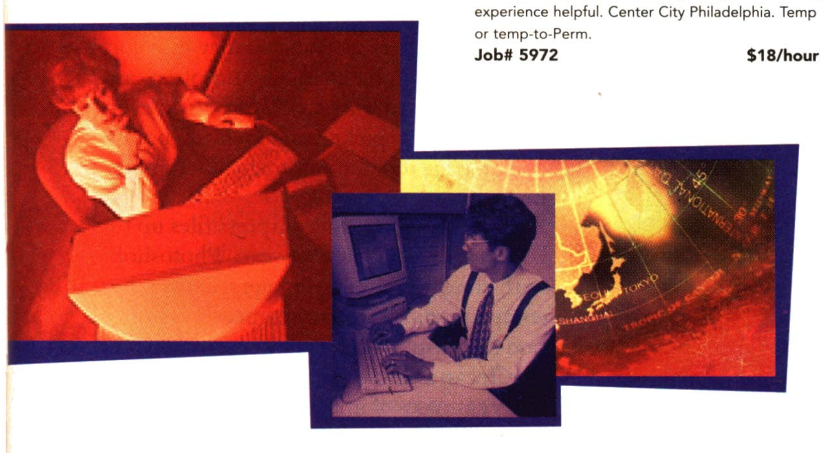


CALL 1-800-MACTEMPS

Sagem to offer new ISDN tools

By Joanna Pearlstein

Sagem will show its new ISDN and videoconferencing products at Macworld Expo this week in Boston.

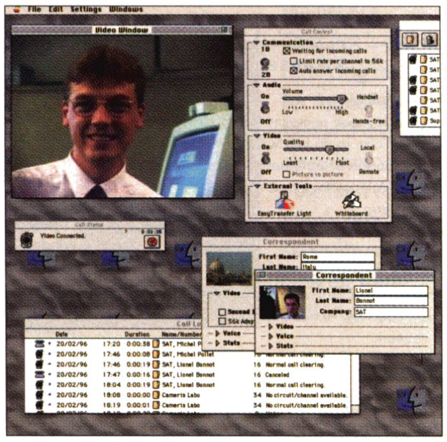
The company, formerly known as Sat-Sagem, is now shipping the U.S. version of the Sagem Planet-ISDN GeoPort Adapter, a $395 ISDN terminal adapter that uses Apple's high-speed serial port, the GeoPort.

The product can combine its two B channels to achieve transmission speeds of 128 Kbps; it includes a built-in NT-1, a terminator for an ISDN adapter. Earlier this year Sagem shipped the $495 worldwide version, which does not include the built-in NT1.

Sagem will also show off Meet-Me Light, a software-only H.320 videoconferencing product for Power Macintoshes. Priced at $299, it is geared toward users of ISDN lines who require low-cost videoconferencing. The software works with any H.320-compliant videoconferencing package.

The company has also reduced the price of its PCI and NuBus ISDN cards, from $995 to $650. The dual-channel cards, which transmit files at speeds up to 128 Kbps, come with several communications programs.

Sagem of Cupertino, Calif., can be reached at (408) 446-8690; fax (408) 446-9766; satinfo@satusa.com; http://www.satusa.com. □



Sagem's $299 Meet-Me Light is an H.320-based videoconferencing software package for Power Macintoshes.

BoxTop plug-ins focus on images for the Web

By Rebecca Gulick

BoxTop Software Inc., in conjunction with Digital Frontiers LLC of Evanston, Ill., shipped in July a set of Adobe Photoshop 3.0 plug-ins for compressing and converting images into Web-ready formats.

HVS WebFocus, priced at $129, can create GIF, animated GIF, JPEG and progressive JPEG files that are optimized for use on the Web.

The HVS PhotoGIF plug-in can compress a file up to 70 percent tighter than can Photoshop, according to the company. The plug-in lets users set transparency by color or from the alpha channel, and offers an array of transparency tools, such as an eyedropper color picker, a touch-up brush and an edge tool for automatically removing halos.

HVS ProJPEG can compress files up to 20 percent smaller than can Photoshop with no difference in image quality, the company said. It features a preview function that displays information about image size. It can also save predefined settings for different types of images.

BoxTop Software Inc. of Starkville, Miss., can be reached at (601) 323-6436 or (800) 257-6954; fax (601) 324-7352; http://www.aris.com/boxtop/. □

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THEY FORGOT HUMBLE.

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MESSAGING

"Its excellent features and fantastic reliability make FirstClass shine as the premier groupware application."

MACUSER, 01/95

"I can't stress how much a well-designed system like FirstClass, especially with its sophisticated conference features, can boost productivity over simple e-mail."

RAYMOND G.A. COTE,
BYTE MAGAZINE

"FirstClass delivered excellent performance throughout our tests...we didn't have a single server crash or system error on the system we left running for well over three months, with daily logins from more than 100 users."

MacWEEK, 05/95

"A complete electronic mail, group conferencing, and database access package that provides sophisticated workgroup functionality in an easy-to-use graphical environment."

CANADIAN COMPUTER RESELLER

"FirstClass is a bargain for its e-mail strengths alone. Powerful communications tools make it even better. If your small workgroup needs to connect, communicate, and collaborate...check out SoftArc's FirstClass 3.0."

PC/COMPUTING, 02/96

"FirstClass crosses communication categories by integrating features usually found in three or more products. It offers easy administration and a wide range of useful functions, and has a mature, well-thought-out infrastructure."

WINDOWS MAGAZINE

"Perhaps the best client/server messaging implementation out there...an excellent product."

FERRIS MESSAGING
ANALYZER

"We at A&M studios are thoroughly enjoying our FirstClass system, and in fact, business could not go on without it here."

A&M STUDIOS,
LOS ANGELES

"FirstClass from SoftArc offers a refreshing alternative to the mantra of concerns about managing workgroup environments. It offers workgroup communication capabilities at a competitive price, with low system overhead."

WORKGROUP COMPUTING REPORT,
PATRICIA SEYBOLD GROUP

"You've blown the socks off of our previous e-mail system and have brought a new era of intercommunication to our organization that has earned us a ton of praise and thanks."

CHALLENGER CENTER FOR
SPACE SCIENCE EDUCATION

"FirstClass has an appealing price, is extremely easy to install, and requires a near-zero learning effort. FirstClass should definitely be considered in procurement evaluation plans of organizations with simple groupware needs."

THE MESSAGING TECHNOLOGY
REPORT, THE RADICATI GROUP,
VOLUME 5, NUMBER 1

"FirstClass blends conferencing and mail together under a remarkably clean interface that goes far beyond the capabilities of most mail systems."

RAYMOND G.A. COTE,
BYTE MAGAZINE

"Analysts and users applaud FirstClass for its ease of installation, administration, and its low cost."

INFORMATION WEEK

"What makes FirstClass so attractive is the fact that using it simply creates another desktop on top of your own computer desktop. It is a familiar world of files, folders, click and double click. It is graphical, straightforward, and intuitive."

TIMES EDUCATIONAL
SUPPLEMENT,
SCOTTISH EDITION

"SoftArc's FirstClass is an excellent product, with many features that are very attractive to both users and support staff. FirstClass deserves success in large organizations. The new FirstClass Server for Windows should be a big help in this regard; previously you needed a Mac-based server, which doesn't work for many user departments. FirstClass is a system worthy of evaluation for corporate-wide, diverse communication needs."

DAVID FERRIS, FERRIS RESEARCH
E-MAIL ANALYST FIRM

"We are using FirstClass at the Prime Minister's office. After that, other institutions have been inspired. In just a few months, thousands of FirstClass copies were spread over the country."

CARL BILDT,
FORMER PRIME MINISTER
OF SWEDEN

"FirstClass is an excellent product. Its reliability astounds me. We have had no end of trouble with our QuickMail system, yet FirstClass never misses a beat–and we have it running on an old spare 128 upgraded to a Plus, with only 1 MB of RAM. I would thoroughly recommend it to anyone."

ADVANCED COMMUNICATIONS,
NELSON, NEW ZEALAND

"Our experience with [FirstClass] has been great. FirstClass has provided reliable e-mail, gateways between our Canada-wide offices, an Internet gateway, and a newly installed fax gateway. It also does group conferencing and replication of text databases and discussions...no consultants to get us up and running; we figured this one out ourselves."

DOUG ALDER, EDITOR,
THE COMPUTER PAPER

"FirstClass does everything. Not only does its implementation of e-mail include all the features you could want, it also offers conferencing and bulletin board facilities. The software is comprehensive and flexible enough to expand to most organizations' needs."

MACUSER UK

"FirstClass' workgroup capabilities enable teams gathered from several different continents and time zones to work concurrently on projects."

JACK RANIERI,
TSB INTERNATIONAL

"I just wanted you to know how pleased we are with FirstClass. Your system meets all of the requirements my users had. It seems to have been made for them and has good response times. I congratulate your company on a job well done and I look forward to using FirstClass for a long time."

MICHELLE HART, AYUDA
NETWORK, MARIANA ISLANDS

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The good life

English author George Moore observed, "The difficulty in life is the choice." Luckily for Macintosh buyers, life has never been so difficult.

At this week's Macworld Expo in Boston, vendors will demonstrate a host of different Macs in a variety of configurations and prices. While we saw inklings of what would be possible in a competitive CPU market last year in Boston, this year's show delivers on that possibility.

The first clone maker, Power Computing Corp., will introduce the fastest Mac ever built, one that the company is touting as faster than any Intel-standard machine on the market.

At last year's expo, UMAX Computer Corp. was only being whispered about as a potential player in the Mac-compatible market. This year it is shipping the S900, the first member of its SuperMac line of compatibles, plus showing new models using PowerPC 603e.

DayStar Digital Inc. is contributing at two levels. First, it is bumping up the performance of its Genesis line of multiprocessor (MP) Macs. It is also releasing its nPower 360+ dual processor card for PCI Power Macs.

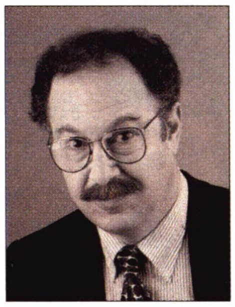
Then there's Apple. It's weighing in with its first MP model, based on the Power Mac 9500. It will also unveil a performance upgrade for its PCI Macs. And the consumer line will top the 200-MHz mark with the Performa 6400.

If CPUs were the only story on the show floor, that might be good enough news. But the Mac continues to attract innovative and important applications: New and upgraded software will be plentiful, those interested in the Internet will be overwhelmed with the possibilities, and OpenDoc fans will have a field day.

As we've noted here before, gaps remain in the Mac product line and in the available software. But the trend is toward having increased choice from more CPU and third-party vendors. Deciding what to buy and from whom will be the toughest problem we'll have at expo this week. □

THE SECOND DECADE HENRY NORR

It's cyberspace, not shelf space, that is key to future



Promoting awareness of the mail-order channel and taking better advantage of CD-ROM are important steps Apple can take, in the near term and at modest cost, to combat the perception that Mac software is hard to come by.

But the future of software distribution is electronic, and because shelf space in cyberspace is almost infinite, Apple and its developers have every incentive to encourage this trend.

Developers show the way

Mac developers are already doing great things in this area.

A few examples: Peter N. Lewis and Flash Sheridan have produced nifty electronic-registration utilities for the Mac and Newton, respectively. Europa Software Inc. endowed the time-limited demo of its Web Quick navigation utility with an online ordering scheme that makes it irresistibly easy to buy a full license when the free version expires. Kantara Development has created an OpenDoc component called PartFinder that automatically searches online for an appropriate part editor when none is available locally.

Electronic distribution can even help on the retail front. A company called BITSource is offering resellers an Internet-based, Wizard-assisted software catalog and delivery system called SmartShelf.

Apple could help by publicizing these initiatives in developer circles; in some cases, it could license the technologies involved and offer them free to all Mac developers.

Unfortunately, much of Apple still resists not-invented-here innovations: Six months after offering to license its technology to Apple, sources at Kantara say they are still waiting for a reply.

The most important thing Apple can do with online communications is to communicate with the buying public about the rich library of software available for the Mac. Recent suggestions from readers include loading all new Macs with bookmark files, Apple Guides and even startup Stickies listing online software sources. I'd also like to expand on my proposal of two weeks ago that Apple set up and heavily promote a comprehensive online directory of Mac software.

Online directory

As I envision the hypothetical www.macsoftware.com, every registered Mac developer would be entitled to one page on Apple's server, at little or no cost, for every product it ships. To ensure consistency and reliability, Apple should supply an attractive template, into which developers could plug their own text and screen shots, and organize the pages into an easily navigable hierarchy, backed up by a fast and easy search engine. The site wouldn't be a store or download library, but developers would be free to add links to their own sites or to any reseller they wished, online or traditional.

I bet it would cost less than Web-casting another concert, and I suspect it would do the Mac cause a lot more good. □

Henry Norr, editor emeritus of MacWEEK, welcomes feedback in the MacWEEK forums on CompuServe or at henry_norr@macweek.com.

LETTERS

Just say 'Go'

In the 07.15.96 issue, the Mac the Knife piece implied that I left Power Computing because I either failed a drug test or refused to take one (Page 70). Neither is true. Though Power Computing is apparently drug-free now and I no longer work there, one had nothing to do with the other. I resigned long before Power Computing implemented its delightful little surprise mandatory drug-testing program.

Thanks for this chance to set the record straight.

Bob LeVitus
Austin, Texas

Real retail rub

I read with some trepidation Henry Norr's views about Apple and the software dilemma it faces when trying to push Mac OS-compatible software onto retailer shelves in the face of the huge Intel-standard armada (07.22.96, Page 20). Quite frankly, Norr got it wrong.

It's not the quantity of the software out there that forces Macintosh titles off the shelf, it's the star quality. Software titles are somewhat like video titles: Ninety-nine percent of the people want 1 percent of what's on the shelf. That's why the largest section in any Blockbuster Video outlet is "New Releases." For the Mac, the most glaring and consistent problem isn't the quantity of what's out there, it's the lack of certain titles from the PC world that have come to define popular software consumption — for the most part, that means games.

Alternative channels are just that — alternative. The presence and local advertising power of retailers is still dominant, and lately their prices have been comparable with mail order. For Mac OS software, the problem isn't really one of distribution, it's of variety and timeliness to market. Norr mentioned Cyberian Outpost as a valid alternative channel for distribution. Its last product update showed that its best-selling product has been the Mac version of MechWarrior II, a game released an eon ago for the PC market, clearly demonstrating that a popular title on the Mac is now often defined by its previous popularity on the PC.

It's time to focus on getting the best the industry has to offer over to the Mac OS. As far as shelf space goes, it really doesn't take that much to demonstrate or offer space to the best the industry has to offer. Twenty games, 10 utilities, 15 graphics and business programs, and a dozen or so educational products is really all that sells from any retailer's repertoire. If only Apple could leverage over to the Mac OS platform the third-party producers of what is best and needed out there, then this retail shelf space (and local advertising) problem could take care of itself.

Thomas Scott, owner
Scribe IS
Vancouver, British Columbia

Symantec superior

In regard to your 07.22.96 editorial (Page 20): While Symantec Corp. may be beaten in the Mac C++ market (it's not at all clear from Internet newsgroup messages that the company has stopped developing new features), it's worth noting that if it lost, it did it with a much better product. The Symantec IDE (integrated development environment) offers such niceties as multiple project windows, compiling while you edit, easy configuration between debug and production versions, integrated source-code control, and syntax styling. Metrowerks Inc. has released two upgrades of its CodeWarrior since Symantec had these features and has caught up on none of them.

David Dunham, software designer
Pensee Corp.
Seattle

Multimedia Macs rule

Just thought you might be interested (considering all of the dark, unpleasant news about Apple and the sickeningly gleeful gloating of the Wintel acolytes) that last month I attended Macromedia Inc.'s Go Live event in Washington, D.C. Not only was the presenter using a Mac (with a Windows machine to show cross-compatibility), but fully 80 percent of the multimedia and high-end video-editing exhibitors were using them as well. A show-of-hands poll revealed that the audience was evenly split between Mac and Wintel — not bad, considering Mac's lower overall market share.

It seems that when people want to buy a computer, they prefer Windows machines, but when they actually want to do something with them, they buy Macs.

Patrick Long, production manager
Pensare Design Group
Washington, D.C.

How to contact MacWEEK

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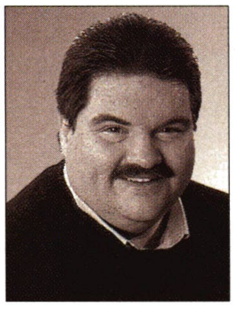
THE MAC MANAGER DON CRABB

Essence of expo emerges in Newton technology

Here I am getting my schedule together for Macworld Expo in Boston. Zipping through the pile of business cards I collected at last year's show, I am struck by how many Macintosh people and companies have morphed in the past year. None more so than Apple, of course, but the trend is there for just about all the companies doing business in the Mac OS world.

The amazing thing from my perspective is that the vast majority of these changes have been improvements. They might have been painful, but it was pain born of necessity and reason.



No part of the expo has changed more for the better than the part at its periphery — the PDA market, specifically the Newton. No other Apple technology has come further in the past year than the MessagePad and its Newton OS. You can argue that the Newton is not really a part of Macworld Expo, but you would be wrong. The Newton is the expo reduced to its essence — technology that is convenient, easy to use and *reliable*.

While the Mac mainstream fought the price/performance battle during the past year and pushed performance above all else, the Newtonians did a far smarter thing: They pushed reliability and consistency.

Buy a 130 now

The current MessagePad 130 is not the ultimate PDA, nor the penultimate, nor whatever comes before that. During the next 12 months (and for those lucky to get into secret Boston hotel rooms during the expo), Apple will show new MessagePads that are faster, better, cheaper. You know the drill.

But that does not alter the fact that you should buy a MessagePad 130 now. If you look hard and do a little dealing, you can get one for less than $700. That includes a backlit device with 2.5 Mbytes of built-in RAM, the quintessential mini-PIM (which, by the way, synchronizes beautifully with Now Up-to-Date using Now Synchronize, both from Now Software Inc.), and the other basic applications you need.

Once in hand, use it right away. Get your block printing up to snuff and you'll be driving the thing quickly in no time. Use it like I do to keep daily appointments, to-do lists, project notes, addresses, and even some of your e-mail and Web work.

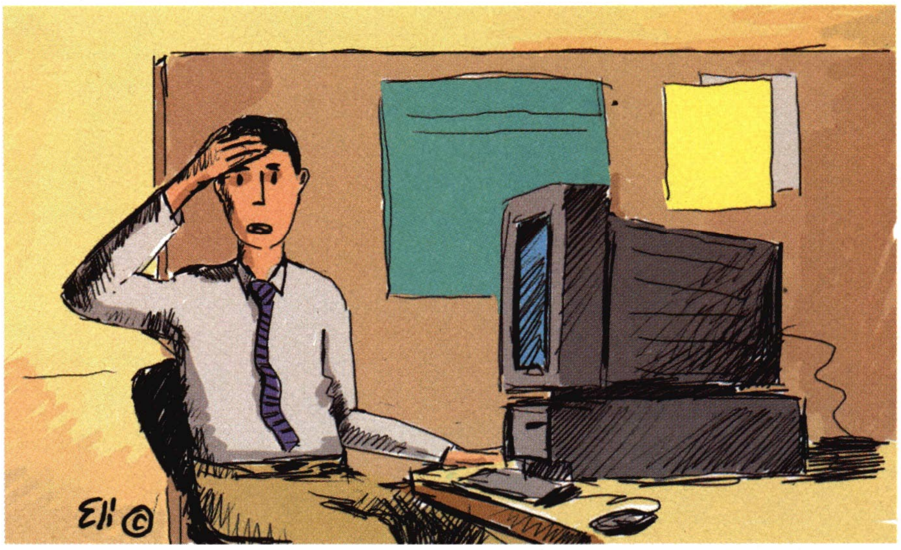
NetHopper learned well

Thanks to new software from AllPen Software Inc. called NetHopper, I use my 130 as my quick-hitting Web-access tool. For less than $80, NetHopper, along with the Apple Newton TCP/IP software, gives me powerful and flexible Web browsing. I can read Slate, hip-hop the ZD Net site, get bored out of my skull with MSNBC, and make sure my syndicated columns are alive and well on the Chicago Sun-Times site — all from my 130, a PC Card modem and a phone line.

And the connection stays connected (no goofy Point-to-Point Protocol timeouts). The OS is stable. The apps meet expectations. It works R-E-L-I-A-B-L-Y. Like Macs used to.

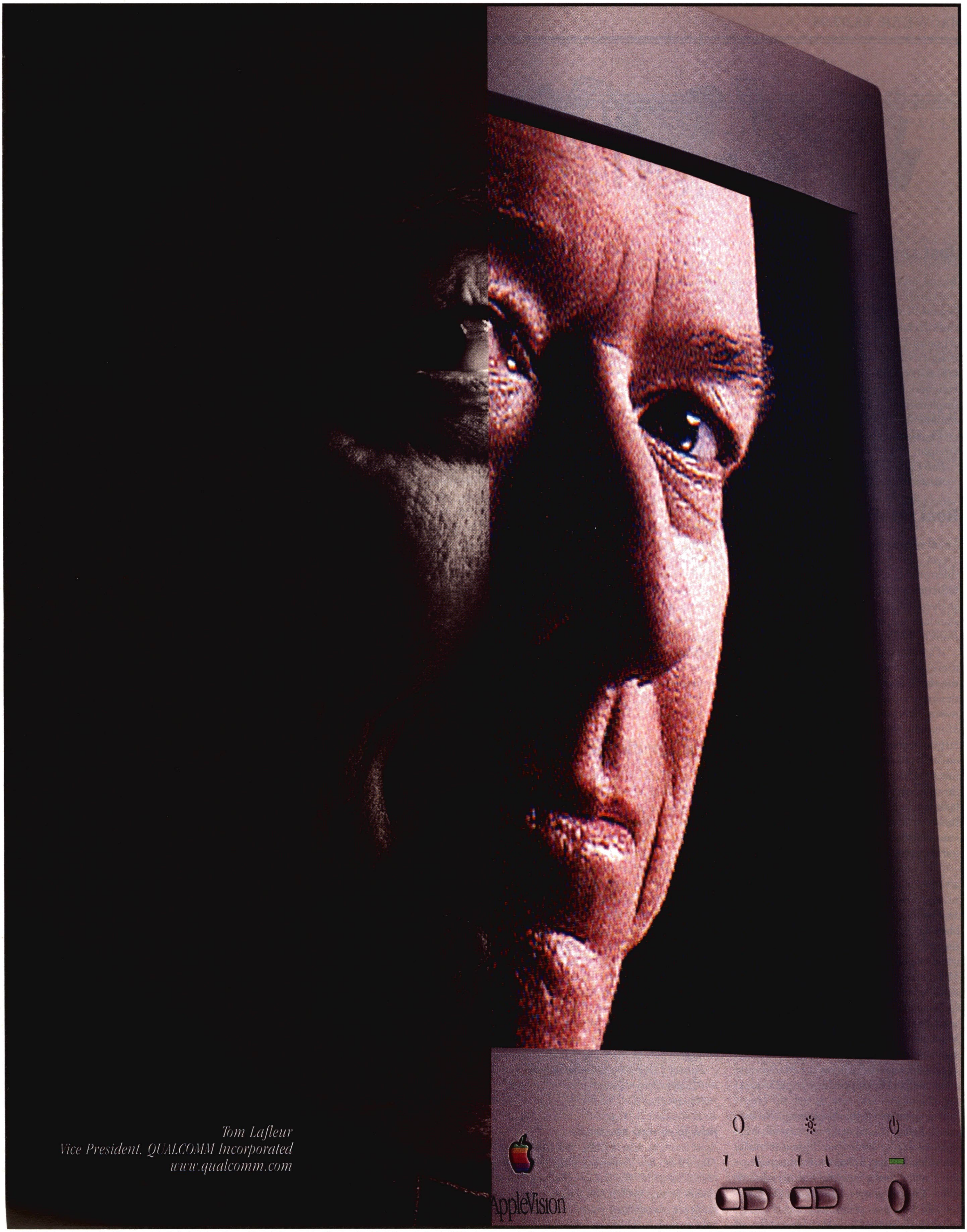
Of course, I can't begin to do all the things with my NetHoppered MessagePad that I can do with a PowerBook and Netscape Navigator 3.0, but the things I can do are rock-solid. Perhaps this should be our expo mantra for 1997: Reliability first, everything else, second. □

Don Crabb welcomes comments at his Internet address decc@cs.uchicago.edu. You can also check out his home page at http://cs-www.uchicago.edu/~decc/.



"I just had an out-of-memory experience."

Comments? Ideas? Contact Eli at elitoons@aol.com


Tom Lafleur
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MacWEEK Guide to Intranets

Intranets — organizational networks using Internet applications and TCP/IP — are springing up everywhere. Do you need one? Where do you begin? Will it replace your Lotus Notes system? We answer those questions and look at the viability of Mac servers. Then Don Crabb questions it all.

JEAN TUTTLE

Ten things to consider when building corporate intranets

By Michael Miley

While the Web firestorm on the Internet proceeds pell-mell, the rise of the intranet inside the corporate fire wall may prove more explosive. Since Web browsers and servers run equally on Mac, Unix and Microsoft Windows systems, cross-platform problems are minimized while access to legacy data is maximized. And the Internet's framework is based on standards: TCP/IP for control and data transport, and on top of that, such services as SMTP (Simple Mail Transfer Protocol) for e-mail, FTP and domain name server (DNS). By the year 2000, nearly 3.3 million intranet servers are predicted for corporate sites, as opposed to 650,000 for the Internet, according to Zona Research Inc. of Redwood City, Calif.

Since intranets are not confined to the Web, yet include directory, e-mail, file sharing, groupware and databases, coordinating these technologies will be a long-term task. However, Web publishing has proved management-intensive on big Internet sites, and Web-based intranets will be even more complex. This means you should proceed with foresight and consider important factors.

1. Explore your possibilities

Web applications generally fall into three categories: communication on a one-to-many basis, as in press releases and policy manuals; two-way interaction, such as help desks; and many-to-many collaboration, such as bulletin boards and databases.

One example of Web-based intranet applications has been developed at CNN Interactive, a department of Turner Broadcasting System Inc. in Atlanta, where four Quarterdeck Corp. WebStar servers running on Power Macs help support the CNN external Web sites. Two of the servers mirror the dual sites of the Sun UltraSPARC and two act as internal Help Desk and Projects Pages systems. "The Help Desk connects to a [Claris] FileMaker Pro 3.0 database server with some eight or so CGI [Common Gateway Interface] scripts that we wrote in AppleScript," said Audra Brand, support manager at CNN Interactive. "It contains forms readable by browsers for submitting requests for services, products and software. It also connects to our PageNow pager system. The other server hosts our Projects Pages site, where we post updates and discuss projects on our BBS."

Once you have some idea of the range of what's out there, you need to identify the various groups who will influence, if not determine, your strategy, such as MIS, consultants, users and those with the data to share.

2. Lay your foundations

If your company already has a presence on the Web, moving Internet technologies to your intranet won't be a big leap. Nonetheless, an Ethernet LAN running TCP/IP in addition to AppleTalk is your foot in the door, since intranet services, including the Web, FTP server, DNS and e-mail, require TCP/IP.

The good news is that your network may already be "intranet-ready" for TCP/IP, since the MacTCP control panel comes bun-

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Intranets

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dled with System 7.5. (Note that the new PowerPC-based machines with System 7.5.3 also include Open Transport, Apple's PowerPC-native networking technology that supersedes MacTCP. Open Transport improves intranet performance and is easier to configure.)

Many corporations include 100-Mbps Fiber Distributed Data Interface or Fast Ethernet backbones in their networks.

"It's a good idea to connect those machines which may see a lot of internal intranet access, such as Web and FTP servers, directly to your backbone," said author Tobin Anthony in his book "Building and Maintaining an Intranet With the Macintosh." Corporations that are spread out geographically, as well as those open to the Internet, will also have to consider their physical WAN connections. Your Internet users may now be dialing up an Internet service provider, but co-locating your intranet server at the Internet service provider site has not been practical or secure, since your server must be administered and updated remotely. However, that may change in the future with products such as FireSite from ClearWay Technology Inc. (see 07.29.86, Page 14) that will let Webmasters use Internet service provider connections. More common at the moment is buying your own network connection from an access provider such as Sprint Communications Co. or MCI Communications Inc. T1 or T3 lines (rated respectively at 1.5 and 45 Mbps) are usually an expensive necessity, though fractional T1 lines are available. Alternatively, you might look into Switched Multimegabit Data Services, offered by regional telephone companies, for setting up a virtual private network at speeds from 1.5 to 34 Mbps.

JAMIE TANAKA

Tim Hall at Lockheed-Martin Missiles & Space Co. publishes 4D databases on the company's intranet.

3. Set up server technologies

The delivery technology for your corporate intranet will start with your Macs of choice, a Web server, a DNS server and whatever other servers you choose to include in your data stream. Some services can be housed together on one machine, such as your Web and DNS server; while others, such as FTP and e-mail, should probably have their own Macs. Data bus and network speed are the real bottlenecks on an intranet, so consider using a PCI-based Mac on top of Fast Ethernet.

"Serving up an external Web site on a Mac is not really a performance issue, since even a [Power Mac] 6100 can out serve a T1 line," said Scott Kozicki, principal of BlueStar Communication Inc. in Nashville, Tenn., a company that develops corporate intranets for a variety of clients. "Intranets are more punishing, however, since your services are generally dealing with larger files and more of them."

4. Develop content

Planning your intranet strategy means structuring your development team's input, according to author Anthony. He identified three models for updating your server: a managed-access server model, in which users have access to certain areas of the server; a centralized-access model, in which the administrator is the only one with access; and a distributed-access model, in which an administrator manages a team.

Content creation starts by identifying what data you want to publish; developing the structure of the site itself; and rounding up the necessary tools, such as text, HTML, graphics, sound editors and file-translation tools. You'll be linking pages to other relevant URLs and making the proper calls to background processes for interactivity and data content. This may include tying into background databases for posting legacy data on the Web.

"I have to use six or more apps to develop a site," Kozicki said. "SiteMill [from Adobe Systems Inc.] helps on only the most basic of levels: seeing how the site is structured. Clay Basket [from Dave Winer] works similarly. I also use Microsoft Word for spell checking and [Adobe's] PageMill to style text, which I then take into [Bare Bones Software Inc.'s] BBEdit because PageMill doesn't support tables and frames. I then use translators for GIF scans and JPEGs, then any plug-ins, such as Macromedia Inc.'s Shockwave — I have to jump out into those environments. Finally, I have to look at three or four browsers."

Other component technologies include Adobe's Portable Document Format (PDF) for Acrobat Pro; Java applets; Progressive Networks Inc.'s RealAudio tools and servers; Apple's QuickTime and QuickTime VR tools for images, videos and virtual-reality environments; and Virtual Reality Modeling Language for the same.

5. Scripts and databases

Providing Web maps, which are graphics used as an interface for user navigation, or compiling a form's input that is tied into a back-end database usually means writing CGI scripts and programs in languages such as AppleScript, UserLand Frontier, HyperTalk, C/C++ or MacPerl. Scripting tools for writing CGIs include Main Event Software Inc.'s Scripter and Allegiant Technologies Inc.'s Marionet. As an alternative, savvy Webmasters can write directly to Web-server APIs, as with Quarterdeck's upcoming WAPI for WebStar; or write Server Side Includes (SSIs), as with InterCon Systems

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DANTZ DEVELOPMENT CORP.
Retrospect Remote: $449
Orinda, Calif.
(510) 253-3000 or (800) 982-9980

FARALLON COMMUNICATIONS INC.
Timbuktu Pro: $199
Alameda, Calif.
(510) 814-5000

KITCHEN SINK SOFTWARE INC.
ServerStat: $99.95
Westerville, Ohio
(614) 577-8500
or (800) 343-5414

MAXUM DEVELOPMENT CORP.
PageSentry: $145
Streamwood, Ill.
(708) 830-1113

NEW CITY MEDIA INC.
ServerWatch: Free
Blacksburg, Va.
(540) 552-5921

ONLINE UTILITIES

APPLESCRIPT
http://dev.info.apple.com/sdgguide/applscr.html

CHUCK SHOTTON'S ADMIN.CGI AND PASSWORD MOVER
http://www.comvista.com

DAVE WINER'S CLAY BASKET
http://www.hotwired.com/staff/userland/yabbadabba

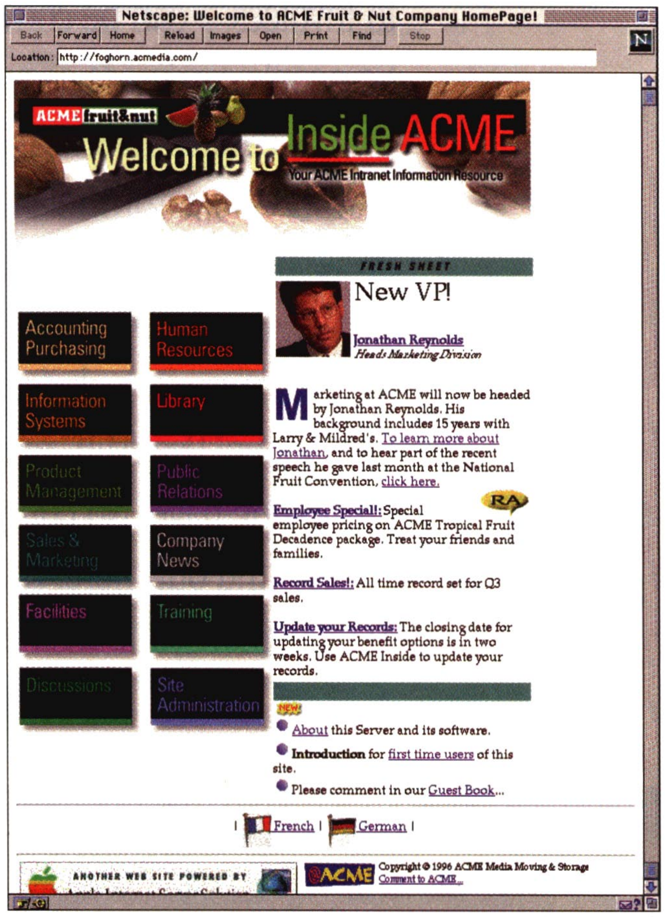
DAVID HABERMANN'S WEBSTAR LINK CHECKER
http://www.comvista.com

MICHELE FUORTES' MACJORDOMO
http://leuca.med.cornell.edu/macjordomo

RICK REED'S MACSPINNER
http://www.comvista.com

RSA DATA SECURITY INC. HOME PAGE
http://www.rsa.com

USERLAND SOFTWARE INC.'S FRONTIER
http://www.scripting.com/frontier



New VP!

Jonathan Reynolds
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Marketing at ACME will now be headed by Jonathan Reynolds. His background includes 15 years with Larry & Mildred's. To learn more about Jonathan, and to hear part of the recent speech he gave last month at the National Fruit Convention, click here.

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Apple's Acme Fruit & Nut Company intranet demo site shows a wide range of prototypical applications, some of them live, for areas including account purchasing, human resources and information systems.

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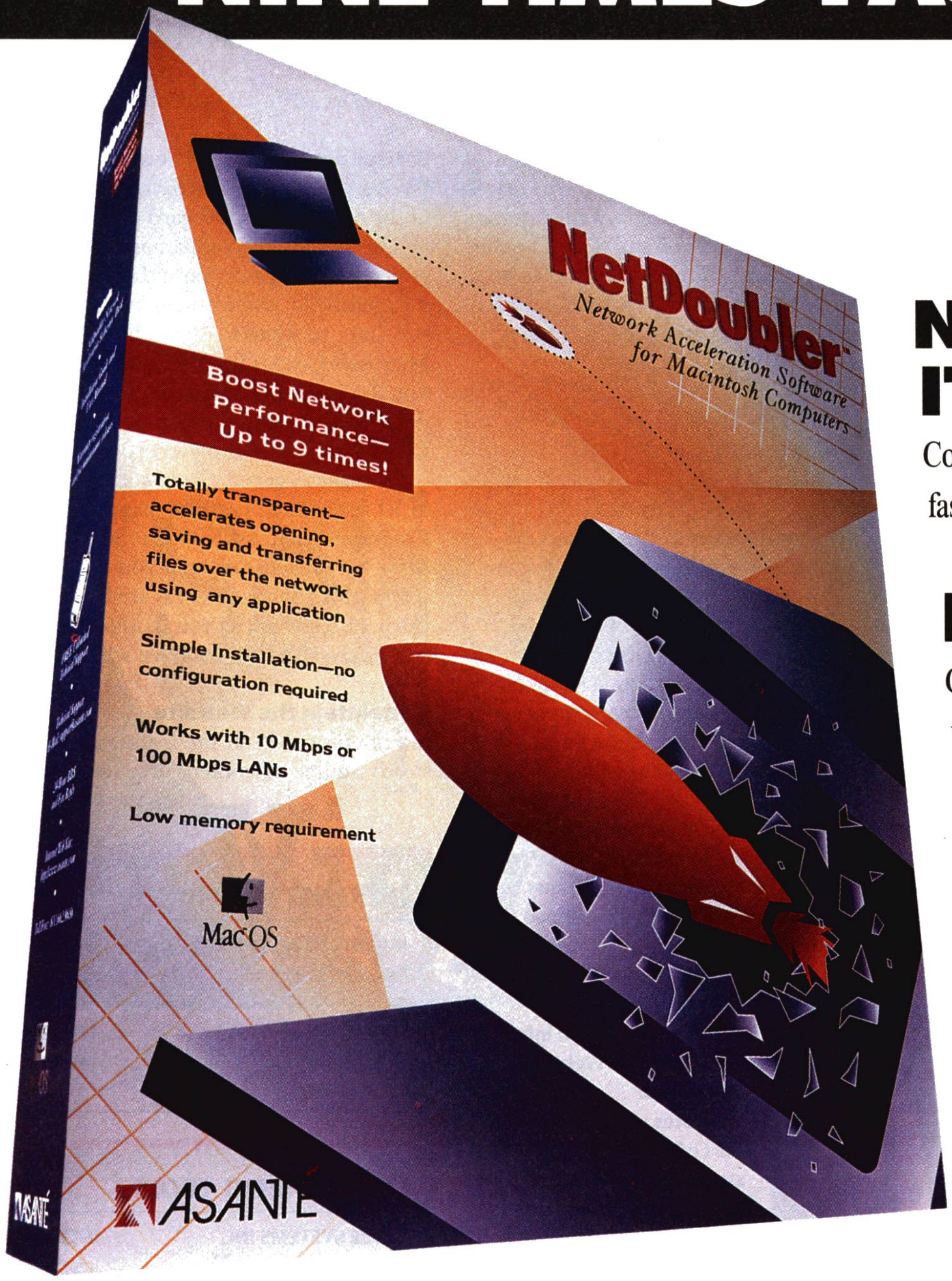
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Intranets

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Corp.'s InterXTML for InterServer Publisher. CGIs should be written with portability in mind. SSIs, while more efficient than CGIs, are usually specific to the server software and don't migrate as well.

Database connectivity via CGIs is one *raison d'être* for an intranet. Commercial and shareware CGIs are available for tying the Web into database and server products such as Oracle Corp.'s Oracle7, Lotus Development Corp.'s Notes, ACI US Inc.'s 4th Dimension and Claris Corp.'s FileMaker Pro. However, CGI isn't the only way to serve up database information on your Web. For 4D users, ACI now offers 4D Web SmartServer, a bundle that includes 4D; Foresight Technology Inc.'s NetLink/4D; and DataCraft Inc.'s DataWave, which lets you publish database content on the Web within minutes with no additional HTML or CGI programming.

"We have hundreds if not thousands of applications written in 4D, from online catalogs and telemetry data coming down from satellites to marketing and program information for one of our most successful defensive missile programs," said Tim Hall, team leader of microcomputer applications at Lockheed-Martin Missiles & Space Co. in Sunnyvale, Calif. "Using DataWave, we can publish our 4D databases for these applications on the Web in two minutes. We've also now published a catalog of our applications on the Web, also from within 4D, which is available to every one of our 12,000 employees, whether from Mac, PC or Unix machines."

6. User access, support and feedback

Giving your users access to your services is one of the more straightforward parts of building an intranet. Often companies standardize on Netscape Navigator, since they can license it inexpensively, while others, such as universities, have to write to other clients, including Microsoft Corp.'s Internet Explorer; the National Center for Supercomputing Applications' Mosaic; and the University of Kansas' Lynx, a text-based browser.

One way to get and keep people involved is to let users have personal pages on the site. Programs such as Kitchen Sink Software Inc.'s ServerStat can help you analyze your server's logs, while EveryWare Development Corp.'s Bolero will let you do a complete click-trail analysis, helping you see what's popular.

7. Maintain the Web site

Maintaining a Web site includes ensuring a steady source of content creation; installing

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Lotus Notes and intranets

As the Web grabs the corporate world behind the fire wall, analysts and users are asking a key question: Are Web-based intranets the final "Notes killer?"

"I think that Lotus' future lies in the promotion of Notes as a world-class Web engine with the best performance and creation tools," said Tom Pincince, intranet analyst for Forrester Research Inc. of Cambridge, Mass. "The end is near, however, for the non-Web Notes client."

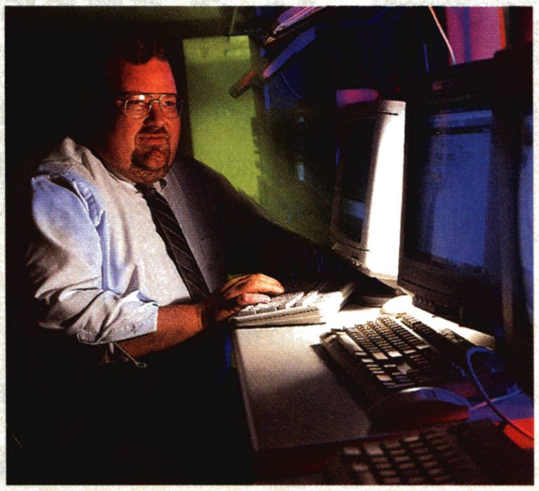
Prospective Notes users say they won't buy the program because of its closed, proprietary architecture; expensive and resource-intensive client; and purported difficulty with setup and maintenance. According to a Nov. 7, 1995, Wall Street Journal story, companies are choosing the Web instead of Notes for corporate communications because they say Notes is expensive and difficult to use. Levi Strauss & Co. in San Francisco, for example, went with the Web instead of Notes for corporate communication among its 10,000 employees. Also mentioned in the story was Lockheed-Martin Corp. of Bethesda, Md., which cited Notes' proprietary technology and expense as reasons for going with a Netscape-based Web.

However, things are shifting at Lotus Development Corp. — and for Mac users. Notes is now being positioned as a full-function Web server, and Lotus said the client will work comparably to a Web browser. Last week Lotus began shipping Domino, its HTTP Services for Lotus Notes. According to Lotus, Domino changes the Notes Release 4.0 server into an Internet-application server. This will let Notes users render Notes data on the fly in HTML format (Domino's first phase), as well as serve HTML documents from the file system (Domino's second phase). Using Domino, any Web client can access and interact with Notes data and applications, including creating, editing and deleting documents.

Additionally, Web-site designers can deliver user-access control to Web sites and Web documents. Web users can be listed in the Notes Name and Address Book, and when accessing a secured site they can be prompted for a valid name and password. Control can be extended down to the field level. Domino also supports SSL, allowing server authentication and encryption of data at the session level. The full Domino feature set is targeted for a third-quarter release.

The price for Notes has also dropped significantly during the past six months, with Version 4.1 now going for $275 for the full Notes client and $69 for the desktop version.

Users and reviewers also report a marked improvement in ease of use with features such as the cc:Mail interface overhaul and InterNotes Web Navigator, which makes the Web an extension of the Notes environment.



RICK FRIEDMAN/BLACK STAR

Kevin Danehy at Millipore said Notes is a central part of his company's intranet Web strategy.

Although Notes' hefty resource requirements remain (Lotus recommends at least 20 Mbytes of total RAM and 40 Mbytes of available local disk space), Notes users say that the program's power and comprehensiveness are more important.One such user is Kevin Danehy, manager of workgroup application development at Millipore Corp., a maker of industrial purification technology in Bedford, Mass. For more than four years Millipore has equipped its 1,500 worldwide users with Notes to automate its sales force, track customers and orders, and to publish information on the Web via InterNotes.

"Notes will be a central part of my intranet Web strategy in the future," Danehy said. "I've got a powerful work-flow, development and security tool. I can manage all my data through Notes and publish documents on the Web via InterNotes. And I don't have to juggle five tools, as I would with the Web.

"I don't know of any competitive Web tool that solidly provides the kind of functionality that Notes provides," Danehy said.

However, with Netscape Communications Corp.'s purchase of Collabra Share, Collabra Software Inc.'s conferencing software, Netscape is poised to go up against Notes. According to David Marshak, editor in chief of the Notes Strategist and vice president and a senior consultant with the Patricia Seybold Group in Boston, "that strategy could backfire, and Lotus could emerge strongly in this. Lotus is very serious about positioning Notes as a full Web server."

— By Michael Miley

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LOTUS DEVELOPMENT CORP.
Domino: Free; Notes Mail: $55; Notes Desktop: $69; Notes Client: $275
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RealAudio Player: Free
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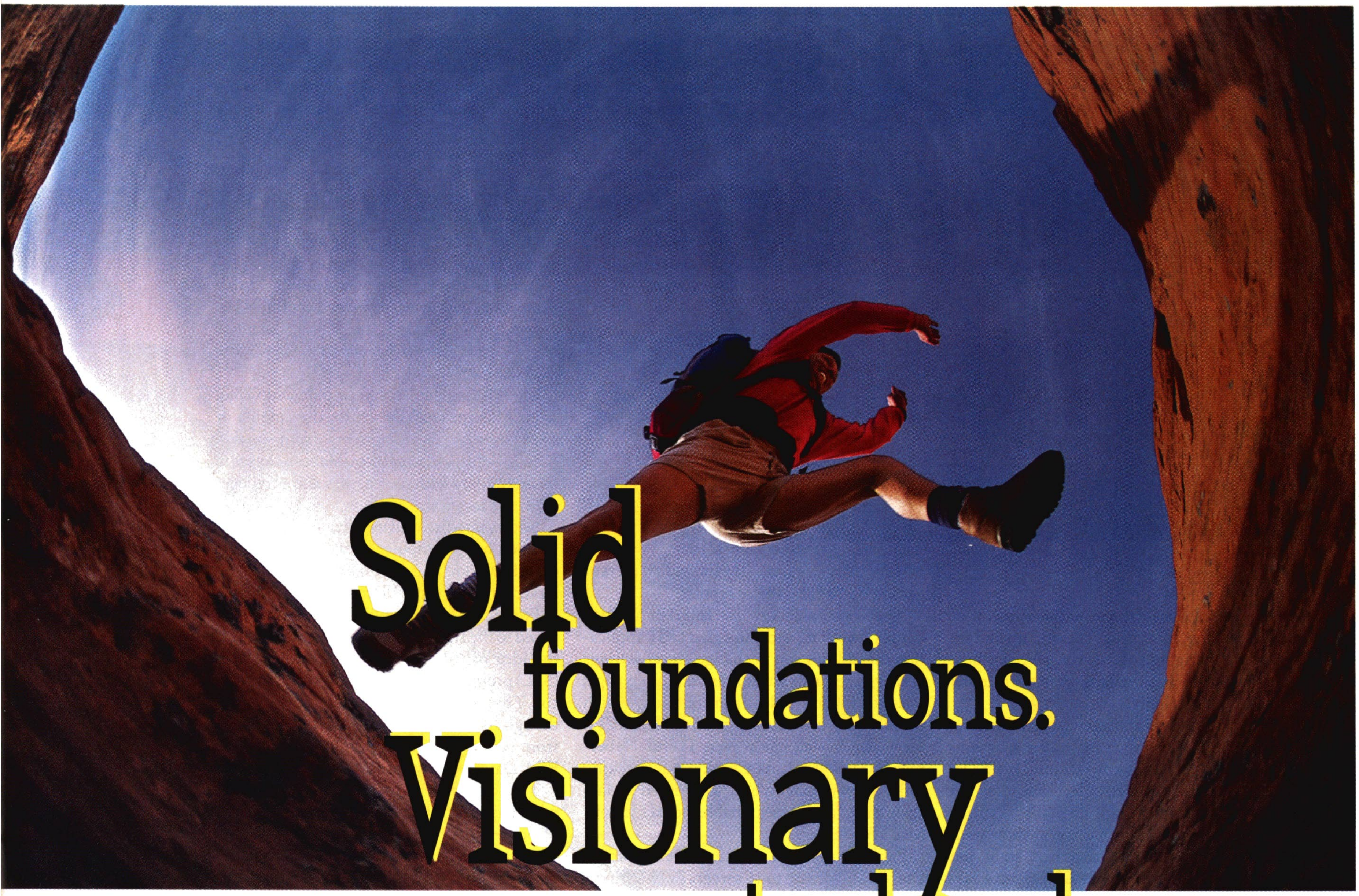
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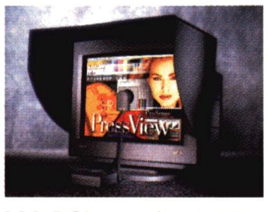
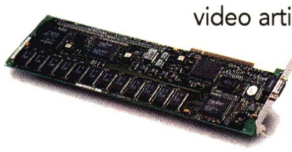


The ThunderPower 30/1920 PCI graphics card offers blazing performance and the highest screen resolution available on any platform, making it perfect for illustrators, video artists and design professionals. It features 6 MB of video memory and up to 1,920 by 1,080-dpi resolution.



It's the perfect complement to the PressView color reference display system. PressView has the accuracy, resolution and clarity needed for color prepress, media authoring, photography and more. Its high-quality DiamondTron aperture-grille CRT supports resolutions as high as 1,600 by 1,200 pixels.

Together, PressView and ThunderPower are four times faster than any other combination on the market. If you're looking for professional, WYSIWYG color and rock-solid reliability, whether for yourself or for your customers, Radius requires no leap of faith. So call your local retailer or Ingram Micro at 1 (800) 456-8000.

Resellers can earn a free PressView 17-inch monitor (a $1,700 value) by purchasing any five of the nine qualifying bundles of PressView or PrecisionView monitors with ThunderColor or PrecisionColor cards from Ingram Micro now through September 27, 1996. Call your sales representative at 1 (800) 456-8000 for details.*

End users can jump on this deal: Purchase any Radius monitor with a Radius PCI graphics card and receive Fractal Design's Poser, the best way to integrate the human figure into design, and E-magine's ProView, the world's easiest multimedia authoring tool, for free (a $198 value). Just fax proof of purchase to Radius' Better Than Ever Summer Promotion at (714) 566-7812.

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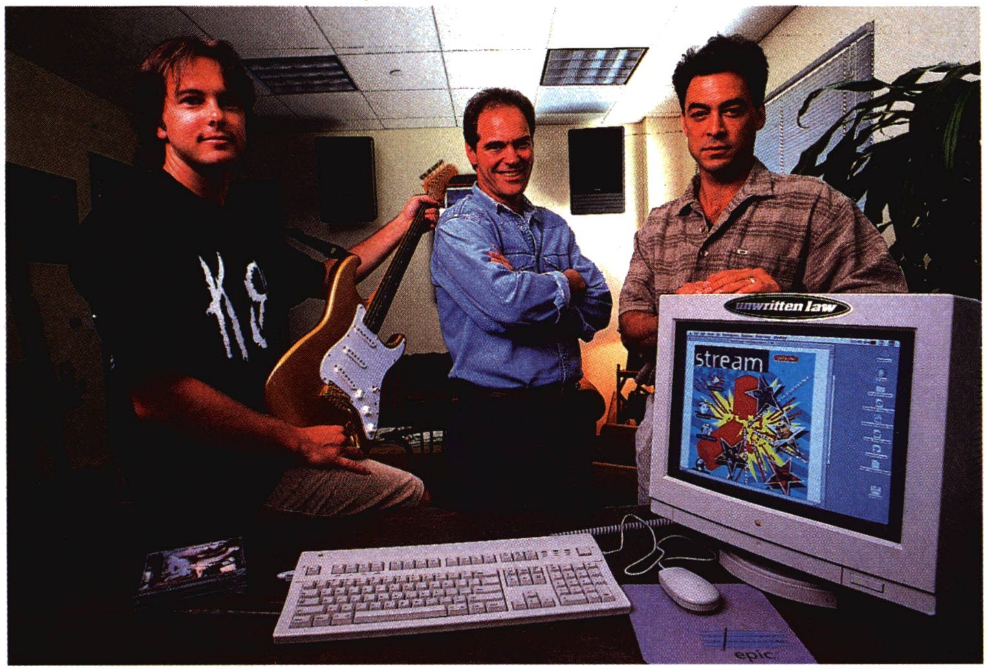

Epic Records has worked on melding its Internet and intranet sites under the direction of Aaron Foreman (left), Steve Rennie and Peter Anton.

KEITH SKELTON/BLACK STAR

Intranets

From Page 40

protection against viruses; maintaining links; and watching, mirroring, backing up and remotely starting up your server. Here's where the "first-generation" character of the intranet shows most glaringly.

Typical network-management products can come into play here, such as Farallon Communications Inc.'s Timbuktu Pro and Dantz Development Corp.'s Retrospect Remote, but Web-specific tools are equally crucial. "Though the tools are out there, a whole solution has to be cobbled together," said Jon Wiederspan, vice president of technical services at ComVista Inc., an Internet consultancy in Bellevue, Wash. "Ultimately, management will probably have to be done through a database for things like tracking individual users or getting up-to-the-minute reports."

Tools available on the Internet include Chuck Shotton's Admin.cgi, a CGI application that allows you to change server settings and even restart your server via a Web page; Password Mover, also from Shotton, which moves password settings from a MacHTTP server to a WebStar server; David Habermann's WebStar Link Checker, for checking links on your pages; and Rick Reed's MacSpinner for adding searchable indexes to your Mac Web server.

PageSentry from Maxum Development Corp. monitors up to 16 servers by checking a specified page and giving a warning if there is a problem. And New City Media Inc.'s ServerWatch is a suite of scripts and agents that, when combined with other key software components, provide continual monitoring of a Web server, with the ability to restart it automatically and send alert messages to a numeric or alphanumeric pager.

8. Add non-Web services

Critical applications can also include e-mail and FTP servers, AppleSearch or other search technologies, list servers for e-mail broadcasting, and group calendars and products such as Lotus Notes for just about everything related to collaboration and communication. Maintaining separate directories for all these services is a problem, which will eventually be handled by X.509 LDAP directory services.

Web-based bulletin boards, such as Web Crossing, and group-scheduling programs, such as ON Technology Corp.'s Meeting Maker XP and Now Software Inc.'s Now Up-to-Date, allow you to add groupware functionality to your Web site, while programs such as Michele Fuortes' Macjordomo (shareware) and Quarterdeck's ListStar give you mailing-list servers for centralized mail distribution.

E-mail is arguably the most important intranet service, and Web tie-ins will be facilitated if it's an SMTP system, one of the oldest members of the IP family. However, a mail server such as the Apple Internet Mail Server (AIMS), which includes Post Office Protocol (POP 3) service, has some advantages over a strict SMTP system. AIMS lets you configure your server for incoming and outgoing Internet mail, and, to let users download mail, it lets you operate a variety of POPMail clients such as Claris Emailer, Qualcomm Corp.'s Eudora Pro and Netscape Navigator.

9. Secure your intranet

The Mac OS has fewer security loopholes than Unix, but security is still an issue when handling sensitive corporate data — particularly when you open your intranet to the Internet. Security includes ensuring data encryption during transmission, virus protection, IDs and passwords, public-key cryptography solutions, the physical security of your server, controlling what users see, and establishing fire walls.

For limiting views on your data, NetCloak from Maxum lets you secure documents or even sections of documents from certain users. WebLock, also from Maxum, lets you secure folders with user names and privileges from one location.

Setting up a fire wall usually means putting a "bastion host" computer between you and the outside world. This host may include a proxy server for monitoring IP traffic.

For secure transactions, Netscape has proposed to the Internet Engineering Task Force the idea of using the Secure Sockets Layer (SSL) protocol as a standard encryption protocol. The WebStar/SSL server supports this, though it requires users to obtain Digital ID from VeriSign Inc., a company formed by RSA Data Security Inc. and others.

That melding of Internet and intranet is what has occurred at Epic Records, a division of Sony Music Entertainment Inc. in Santa Monica, Calif. Its Stream site, the vision of Senior Vice President Steve Rennie, is an external Web that publishes data on Epic artists. Production people update it over Sony's nationwide intranet.

Aaron Foreman, production manager at Epic, spearheads the Stream project with Peter Anton, Epic's Mac MIS manager, and Craig Bramscher, president of DreamMedia and Maxperts Inc. in El Segundo, Calif. "Currently, there are nine components to our Stream Web site," Foreman said. "These include news, a searchable artist index, individual sites with photos, RealAudio and video clips, a discography, bios on the artists, promo material, touring information, a submit form to receive e-mail updates if you're a fan, and a BBS for discussions."

The site runs on several servers, including a Power Mac 9500, which serves up Every-

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BROWSERS

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Cyberdog: Free
Cupertino, Calif.
(408) 996-1010 or (800) 950-5382
http://cyberdog.apple.com

MICROSOFT CORP.
Internet Explorer for Macintosh: Free
Redmond, Wash.
(800) 426-9400
http://www.microsoft.com/

NATIONAL CENTER FOR SUPER-COMPUTING APPLICATIONS
Mosaic: Free
Champaign-Urbana, Ill.
http://www.ncsa.uiuc.edu/SDG/Software/MacMosaic/MacMosaicHome.html

NETSCAPE COMMUNICATIONS CORP.
Navigator: $49
Mountain View, Calif.
(415) 937-2555 or (800) 638-7483
http://home.netscape.com/

UNIVERSITY OF KANSAS
Lynx: Free
Lawrence, Kan.
http://www.ukans.edu

GROUPWARE

COLLABRA SOFTWARE INC., SUBSIDIARY OF NETSCAPE COMMUNICATIONS CORP.
Collabra Share: $490 (10 users),
Workgroup Edition: $4,145 (100 users)
Mountain View, Calif.
(415) 254-1900
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NOW SOFTWARE INC.
Now Up-to-Date Web Publisher: $299
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Meeting Maker XP Server: $249
Meeting Maker XP Client: $89
Cambridge, Mass.
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Costs of building an intranet

ASPECT	COST
Content development	$30,544
Server hardware	$10,869
Network costs	$6,325
Telecom hardware and software	$5,895
Web-site software	$2,382
Browsers	$172
Total maintenance	$53,055
Average first-year costs	**$109,242**

Source: World Wide Web: Costs and Applications, Q2 1996, Creative Networks Inc. of Palo Alto, Calif.

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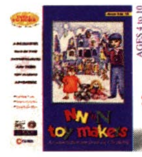

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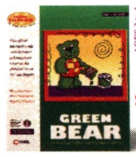

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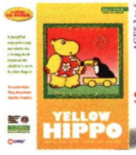

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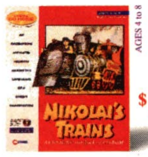

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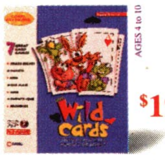

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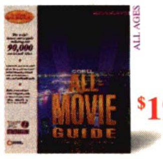

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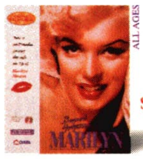

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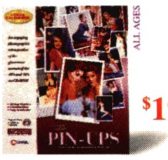

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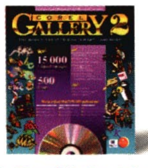

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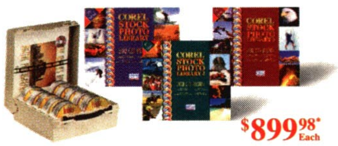

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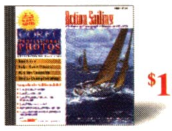

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TECH ANALYSIS

Will Mac make leap from Internet to intranets?

By John Rizzo

JEAN TUTTLE

Intranets are more than just internal Web sites, even though they use similar technology. While developers of Web sites seek to attract visitors with glitzy multimedia, corporate IS groups are more concerned with control of multiple-network resources. Intranet proponents hope that Internet Protocol-based systems will be more than internal electronic-publishing sites; they want the systems to do all that proprietary LAN products from Lotus Development Corp. and Novell Inc. can do.

Companies that provide Internet server software are bullish on intranets. "Anybody doing Internet products will derive 80 percent of their income by delivering them to intranet-type installations," said Andy Lauta, Apple's product line manager of Internet products. Yet while Netscape Communications Corp., Sun Microsystems Computer Co. and Microsoft Corp. have outlined intranet-specific strategies and products, Apple has not. In fact, at Mactivity '96 in July, where Apple Vice President of Internet Platforms Larry Tesler gave a speech about Apple's Internet and intranet strategy, servers were were barely mentioned. Does this mean that Mac servers, popular on the Internet, could be left out of mainstream corporate intranets?

Lauta doesn't think so. "Apple will certainly innovate on specific software areas where we are strong, i.e. publishing," Lauta said. "However, we will continue to leverage the strengths other companies offer."

Serving up Mac OS

Apple is shipping some of the strongest third-party Internet server products, along with its own server hardware, in a bundle called the Apple Internet Server Solution (AISS). Starting at $2,400, AISS includes Workgroup Server hardware running the Mac OS, Quarterdeck Corp.'s WebStar HTML server, Apple's MacDNS, Bare Bones Software Inc.'s BBEedit, Adobe Systems Inc.'s PageMill and Progressive Network Inc.'s RealAudio Server sound-broadcasting software. It also contains EveryWare Development Inc.'s Butler SQL database and AppleSearch, as well as CGI (Common Gateway Interface) scripts for linking to these and other databases. A new tool now in beta, Apple e.g., will let users add Yahoo!-style search and indexing capabilities using Apple's V-Twin search engine. Yet Apple considers AISS a general-purpose Internet product with no intranet-specific features.

Most third-party intranet-oriented products for Mac OS-based servers are database solutions. 4D Web SmartServer from ACI US Inc. allows you to connect databases to a Web server or develop a 4D-based server that integrates the client-server database access with Web, e-mail and other server functions. Another product, Web Server 4D from MDG Computer Services Inc. of Bartlett, Ill., is a 4D database with an integrated database and Web server that doesn't use CGI scripts, which MDG said results in faster performance. However, because the Mac OS lacks the protected, multithreaded memory of Unix and Microsoft Windows NT, Apple acknowledged that Mac OS servers are best-suited to workgroups, not enterprise intranets.

AIX-based solutions

If you have a Unix expert at your disposal, Apple offers the AIX-based Network Server 500 and 700, which include beefier hardware as well as IBM Corp.'s version of Unix. Powered by either a 132- or 150-MHz 604 processor, the Network Servers can handle 1 million hits per hour, 10 times the capacity of its Mac OS-based servers. The Network Server 700 is faster than an IBM RS6000/E20 and a Sun SPARCstation 20/71, Apple said. The hardware includes features that minimize downtime, such as hot-swappable hard drives, power supplies and fans.

AIX will also be able to run intranet infrastructure software not available for the Mac OS. At the Apple Worldwide Developers Conference in May, Marc Andreessen, senior vice president of technology at Mountain View, Calif.-based Netscape, announced that his company was working with Apple to enable Netscape servers and other products to run on Macs.

The first is the Netscape Commerce Server 1.12, which is now available for Apple's Network Servers running AIX and has been used to run Apple's Mission: Impossible Web sites, as well as a site run by Tower Records, according to Frank Nicolo, product line manager of server product marketing. The remainder of Netscape servers will be able to run on Network Servers as soon as Netscape and Apple complete a certification process.

Atri Chatterjee, Netscape director of core Web servers, said: "I don't see it as more than a couple of month's process. We've looked at the technicalities of AIX on PowerPC, and the amount of work required is not that significant."

Intranet-focused servers are also coming to Apple Network Servers, in the form of Netscape SuiteSpot, a set of five intranet servers, according to David Pann, product manger at Netscape's server marketing group. SuiteSpot includes the Proxy Server, which provides content filtering and replication between intranets and the Web.

Later this year, the Network Servers will also be able to run Orion, Netscape's next generation of intranet-specific servers. Orion will bring to intranets some of the infrastructure features found in high-end LANs, including a directory server and a certificate server for user authentication. Directory services are common on enterprise LAN solutions such as Novell NetWare and Banyan Vines but are missing so far from intranet technology. Directories provide a cen-

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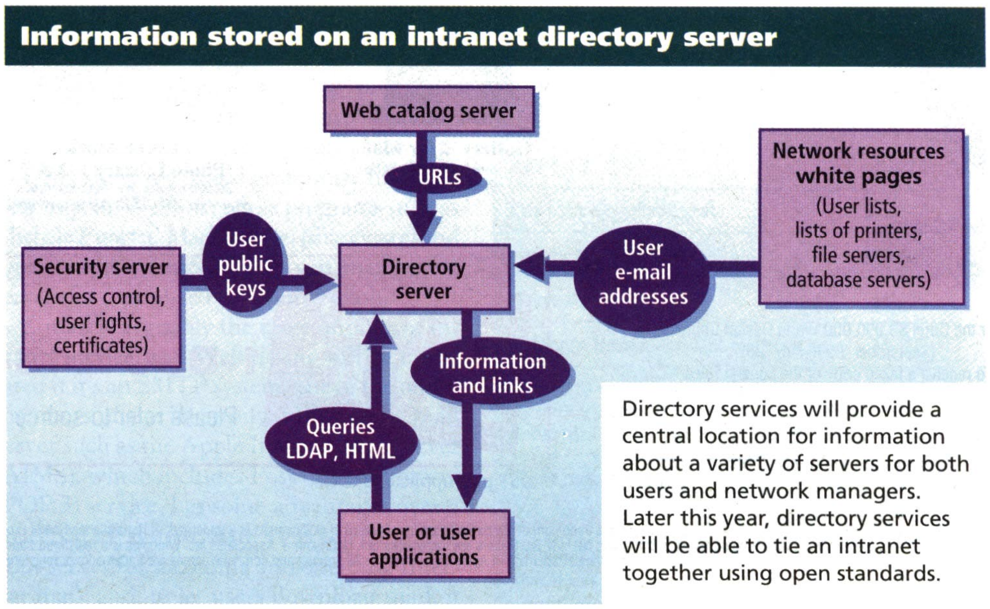
Information stored on an intranet directory server
Web catalog server
URLs
Network resources white pages (User lists, lists of printers, file servers, database servers)
Security server (Access control, user rights, certificates)
User public keys
Directory server
User e-mail addresses
Information and links
Queries LDAP, HTML
User or user applications

Directory services will provide a central location for information about a variety of servers for both users and network managers. Later this year, directory services will be able to tie an intranet together using open standards.

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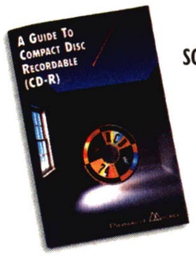

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Servers

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tral place to manage networkwide lists of users and a single place to add, edit or delete user information for servers and network applications.

Cross-platform standards

Directory services aid users as well. Users get single log-on access to information located on several different client-server applications. User applications can also access directory servers.

Orion's Netscape Directory Server makes use of an industry standard called the Lightweight Directory Access Protocol (LDAP), developed at the University of Michigan and endorsed by more than 40 vendors, including Apple, Novell, Microsoft and the Lotus division of IBM.

"LDAP is what companies have been looking for but never really got," Netscape's Pann said. "LDAP allows Windows, Mac and Unix to coexist, and you are not married to one particular server or client application." This is in contrast to proprietary directory software such as NetWare Directory Services, where you can only run software from Novell or Novell-approved value-added resellers.

Directory services aren't new to Apple, which tried to establish its own AppleTalk-based directory services with PowerTalk and PowerShare. Lauta indicated that Apple would be announcing support of LDAP in the near future.

LDAP can also store the location of security keys defined by the X.509, the emerging standard for intranet security that Netscape will use in its Certificate Server. Apple already has experience with X.509; it was the basis of PowerTalk's security. However, it was tied to the PowerTalk system without a general-purpose API. With X.509 experience under its belt, it would not be difficult for Apple to implement X.509 in an intranet product.

Both Apple and Netscape are pushing for the widespread adoption of the MIME (Multipurpose Internet Mail Extensions) standard for more than mail enclosures. Netscape wants to use MIME to exchange directory information in the form of business cards, another concept Apple used in PowerTalk. Besides implementing the same new intranet standards, Apple and Netscape agree on quite a few things. For instance, Netscape will bundle QuickTime in Navigator 3.0. □

SERVERS AND CLIENTS

ACI US INC.
4D Web SmartServer: $1,195
Cupertino, Calif.
(408) 252-4444 or (800) 881-3466

APPLE
Internet Mail Server: Free;
Network Server 500/132: $8,819
Network Server 700/150: $11,829
AISS Workgroup Server 6150/66: $2,299; AISS Workgroup Server 7250/120: $3,299; AISS Workgroup Server 8550/132: $6,449
(all come with Internet software)
Cupertino, Calif.
(408) 996-1010 or (800) 950-5382

CLARIS CORP.
Emailer: $49
FileMaker Pro: $199
Santa Clara, Calif.
(800) 293-0617

MDG COMPUTER SERVICES INC.
Web Server 4D: $394.98
Bartlett, Ill.
(630) 497-0220 or (847) 622-0220

NETSCAPE COMMUNICATIONS CORP.
Commerce Server 1.12: $995
SuiteSpot: $3,995
Sunnyvale, Calif.
(415) 937-2555

NOVELL CORP.
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QUALCOMM INC.
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Berkeley, Calif.
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SUN MICROSYSTEMS COMPUTER CO.
SPARCstation 20/71: $15,000
Mountain View, Calif.
(415) 960-1300 or (800) 786-0404

Intranets

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Ware's Butler SQL database, which indexes the site; and a WebStar Web server running on a Power Mac 8500, which serves up the content. Chat and RealAudio are served up on a Windows NT server in a Compaq Pentium. "Everything passes through [EveryWare's] Tango, which creates the forms for updating and displaying the results," Anton said. "Security for the WebStar site is handled through IDs and passwords, as well as in the Butler database. Though the Stream site currently sits outside the Sony fire wall, steps will probably be taken … to bring some of it inside."

10. Present costs and future directions

Costs will most certainly rise for intranets as the commercial market expands. Even now they are higher than expected. According to a recent survey of 86 large organizations conducted by Creative Networks Inc. of Palo Alto, Calif., the average first-year costs for corporations with more than 1,000 employees is $109,241.

According to Forrester Research Inc. of Cambridge, Mass., intranets will include:

▶ Directories will consolidate identification and security, probably using a standard service accessed by a protocol such as X.500's LDAP.

▶ Internet e-mail will be pervasive.

▶ File service will jump to the Web. The Web's underlying HTTP (Hypertext Transport Protocol) standard will be beefed up to permit authenticated users to check out, edit and repost any files.

▶ Printer sharing will eventually give way to standards-based intranet deployment.

▶ Network management will stay the course. For example, IS has already embraced open standards such as SNMP for system and device management. □

COMMENTARY DON CRABB

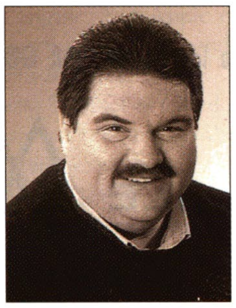
What are you getting into?

I hate to throw cold water on a hot topic, but I can't sit here and not say what I think: Slow down on this intranet jazz.

What are intranets doing for you and your operation? Are they going to make it easier for you to administer groupware applications or replace aging legacy hardware and software or keep Macs in your organization? Are they going to make you wish you'd never heard of the Internet thing?

Lots of questions, few answers

OK, look, I am a big believer in the long-term power of the Internet and local intranets. What I am not a big believer in is snake oil.



As John Rizzo points out in this issue, intranets are more than just internal Web sites. Unlike a corporation's public Web site that's usually used in a PR role (with the glitz of Shockwave, Java, RealAudio and other multimedia tidbits to suck up network bandwidth), one's intranet sites are used, for example, to disseminate critical internal information, provide virtual meeting spaces, and allow workgroups to exchange ideas and information.

As such, any intranet site must have good security and control systems. And as the recent scare with rogue Java applets on Internet sites proves, we are a long way from securing intranet sites the way we secure databases and groupware.

It's a laudable goal, and a democratic one, to want to replace proprietary LAN-based systems with IP-based intranet servers. But, folks, products to handle centralized databases, directory services, user authentication and related software are still waiting to be created.

Sun Microsystems Computer Co., Netscape Communications Corp. and Microsoft Corp. intend to deliver key Internet products to the intranet world. Will Apple do the same? Let's be frank: Apple's track record on enterprise issues has been poor.

So far, Apple's Internet strategy has been tepid. At Mactivity '96 in July, Larry Tesler, Apple vice president of Internet Platforms, had the opportunity to change that. Unfortunately, that opportunity was lost. As it stands now, we still don't know if Apple is totally committed to providing all of its Internet solutions in the proper intranet context way beyond the simple Web publishing one.

Apple will have to give developers such as EveryWare and ACI US *real* support.

D-a-t-a-b-a-s-e

This means Apple will have to give developers such as EveryWare with its Butler SQL and ACI US with its Web SmartServer *real* support. That includes collaborating to make these products work on Apple's most intranet-worthy hardware, the robust and fast Network Server 500 and 700, and its AIX OS.

However, given that Apple has never been able to figure out how corporations use databases, I'm not optimistic that it will be able to help make any Mac-hosted intranet a hospitable place for corporate workgroups. I hope I'm wrong.

I usually prefer to be at the head of the power curve, not in its wake. But with intranets I am urging everyone to think carefully about what they're getting into.

Yes, I think the idea of serving data functions done inside corporations (with databases that often are unwieldy and difficult to maintain) with intranet products is the right one. But look before you leap.

Telling your boss, "We can have all our data systems served on the internal Web in a year," is hubris or worse. Yet I hear it a lot — usually from Mac managers who call me when they realize the big booboo they've made.

The state of intranet software is promising. And it's such that we'll have robust, controllable and high-performance intranet applications before very long. But we are not there yet.

Caveat intranet. □

Don Crabb welcomes comments at decc@cs.uchicago.edu. His home page is at http://cs-www.uchicago.edu/~decc/.

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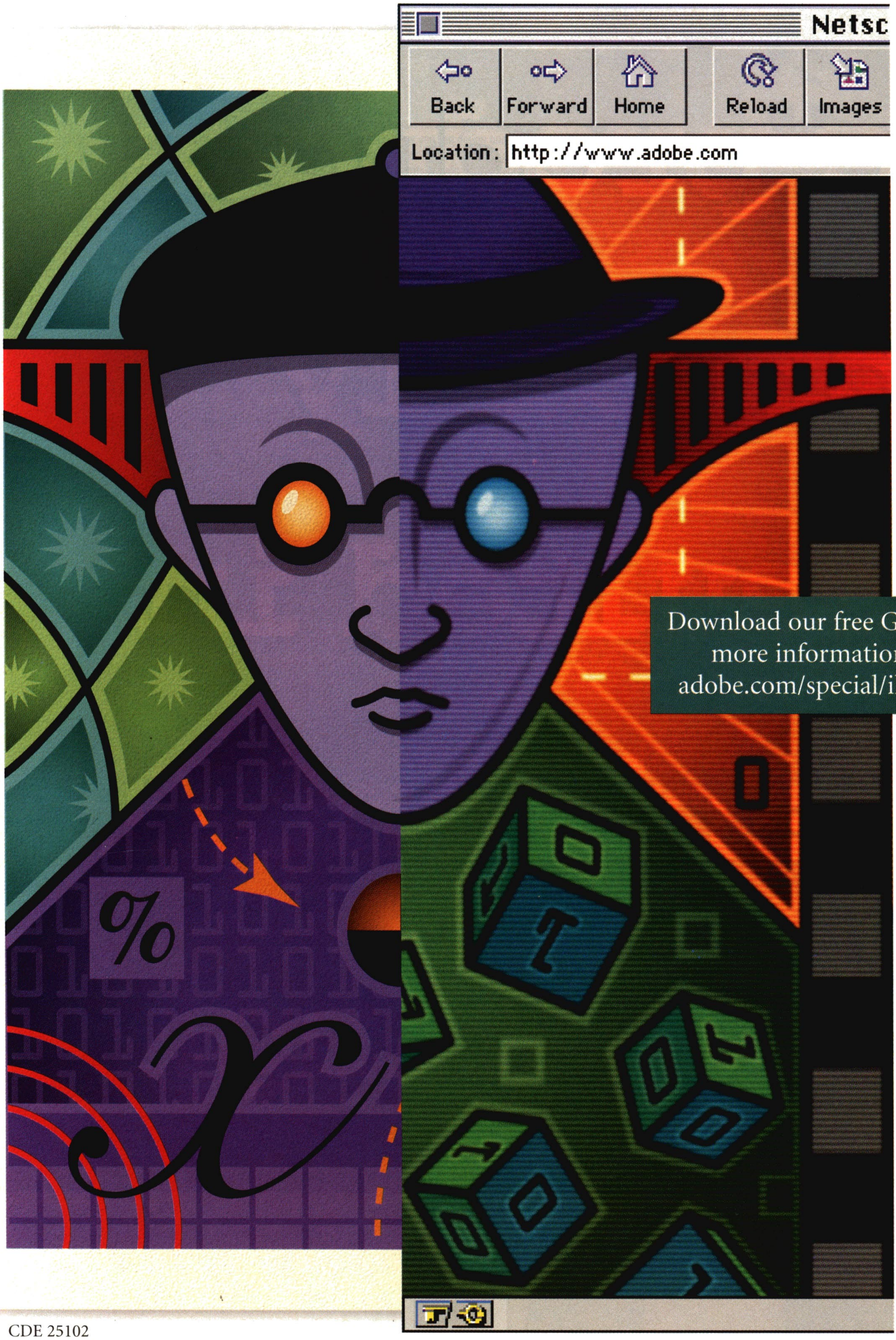

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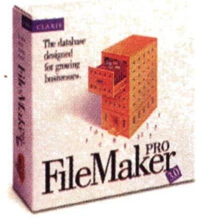

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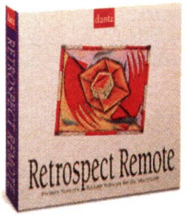

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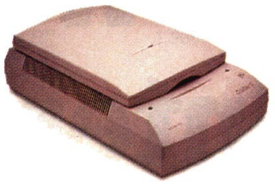

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MacWEEK
200

Power Macs satisfy; Internet component poised to boost sales

The 1996 MacWEEK 200, the eighth annual survey, shows that major U.S. and Canadian corporations and government sites steadily continue to purchase Apple Power Macs with overall high user satisfaction. The notable exception is with PowerPC PowerBooks, where satisfaction dropped considerably.

While those who purchased Mac compatibles seem satisfied, the majority of sites didn't clamor for clones last year — and that holds true for this year as well. The total number of installed Macs and Mac compatibles in this latest survey is 247,457. This makes up 33 percent of all computers at these sites, a decline of 6 percentage points from last year. Intel-standard computers account for 54 percent of this year's total, up 5 percentage points from last year, while workstations account for 13 percent of the total this year, up 1 percentage point from last year. Although change in the makeup of the MacWEEK 200 affects these relative percentages, it appears that the Mac operating system is running on fewer machines, indicating that the MacWEEK 200 list reflects the Mac's loss of market share last year.

Nevertheless, budget plans look promising, with 71 percent of sites expecting to spend $50,000 to $2.4 million on Mac hardware and software in the next year.

Power Macs do well

Power Macs continue to multiply relative to Macs based on the older 680x0 technology. The newer machines now make up 35 percent of the Mac installed base in the MacWEEK 200. Most of the Macs found at MacWEEK 200 sites are desktop systems. They make up 83 percent of the total Macs, and are found at nearly every site. Mac-based servers make up a small portion (about 2 percent) of the Mac installed base for both new and old Mac technologies. Sixty-five percent of sites have 680x0 servers, while PowerPC-based servers are in 33 percent of the sites.

Satisfied customers

Desktop computers maintained their lead over PowerBooks within the PowerPC-based systems at virtually the same rate as the older technology. However, the PowerPC PowerBooks is the one area where some users seem to say they "can't get no satisfaction." Satisfaction ratings for PowerPC PowerBooks failed to reach the high levels usually associated with Macs.

More than 75 percent of the MacWEEK 200 respondents were highly satisfied with their Macs; and in the case of 680x0-based desktops, 90 percent were highly satisfied. When it comes to PowerPC PowerBooks, however, only 56 percent were highly satisfied. This can no doubt be attributed to the well-documented problems that Apple had with the 5300 all-in-one PowerBooks and the 2300 Duo, such as buggy software requiring a major OS fix and a recall from the channel of the 5300s.

Mac compatibles

Mac compatibles continue to be purchased at low levels, which is similar to the results of last year's MacWEEK 200 survey. In fact, the survey indicated that each brand of compatibles sold at about similar levels.

Last year's hopes were high because the compatibles had been on the market for only a few months. While 20 percent of the sites this year reported having Mac compatibles installed, there were only 1,032 Mac-compatible units at this year's survey sites. That is an average of five units per MacWEEK 200 site. Although the percentage of sites purchasing Mac compatibles this year

Microcomputer and workstation breakdown

TYPE	BREAKDOWN
Intel-standard PCs	**54%**
Macs	**33%**
Workstations	**13%**

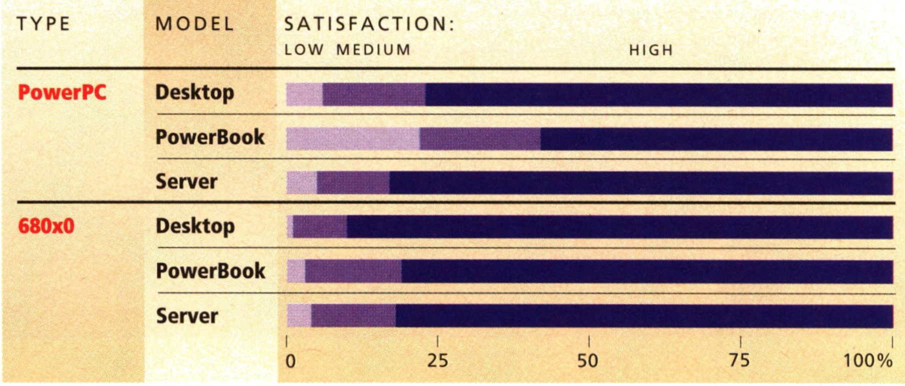
Base: All MacWEEK 200 sites.

Total Macs installed at MacWEEK 200 sites

TYPE	MODEL	TOTAL	AVERAGE # AT SITE	% SITES WITH ANY
PowerPC	**Desktop**	72,065	360	99%
	PowerBook	11,208	56	82%
	Server	1,856	9	33%
680x0	**Desktop**	133,977	669	100%
	PowerBook	24,882	124	93%
	Server	2,448	12	65%

Base: All MacWEEK 200 sites.

Satisfaction rating of Mac models



Base: All MacWEEK 200 sites.

What sites are, why they change

The MacWEEK 200, Education 50 and the new GA 25 rankings are based on the number of Macs at a site, not within an entire company or organization. The MacWEEK 200 definition of a "site" is all the buildings and offices within a 10-mile radius.

One of the challenges in conducting these site surveys is maintaining consistency from year to year. Differences in some of the sites from this year's and last year's surveys resulted from mergers, the consolidation and elimination of sites, and changes in accounting practices for computer equipment. Because in some cases these changes were fairly significant, we did not make comparisons in absolute numbers between the 1995 and 1996 surveys. After reviewing the 1995 and 1996 lists we determined that no apparent bias was introduced with sites being eliminated or added to the surveys, and so we did some relative comparisons between 1995 and 1996.

This year, for the first time, we have added a MacWEEK GA 25 survey, consisting of the largest Macintosh sites from MacWEEK subscriber files that have identified their primary business as being in the graphic arts. Those 25 graphic arts sites were included in the MacWEEK 200 but were analyzed separately. This provided us with a profile of sites focused on the graphic arts that would not have been possible by looking at the MacWEEK 200 itself.

	MACWEEK 200 SITE	LOCATION	MACS	NON-MAC PCS	WORK-STATIONS
1	**Lawrence Livermore National Laboratory**	Livermore, CA	11,340	5,772	3,840
2	**Los Alamos National Laboratory**	Los Alamos, NM	8,500	11,500	2,500
3	**U.S. Department of Energy, Savannah River Site**	Aiken, SC	7,610	6,300	0
4	**Mayo Clinic**	Rochester, MN	5,307	9,000	250
5	**Amgen Inc.**	Thousand Oaks, CA	5,050	600	182
6	**National Institutes of Health**	Bethesda, MD	5,025	12,000	17,000
7	**U.S. Navy, Naval Air Warfare Center***	Point Mugu, CA	4,870	3,500	1,200
8	**Jet Propulsion Laboratory**	Pasadena, CA	4,800	9,100	2,700
9	**Federal Express Corp.**	Memphis, TN	4,485	5,000	500
10	**NASA Ames Research Center***	Moffett Field, CA	4,090	1,200	1,700
11	**Mount Sinai Medical Center and School of Medicine**	New York, NY	3,381	4,500	40
12	**Lockheed-Martin Energy Systems Inc.**	Oak Ridge, TN	3,300	15,500	2,200
13	**NASA Johnson Space Center***	Houston, TX	2,871	7,500	1,000
14	**TRW Systems Integration Group***	Sunnyvale, CA	2,786	700	600
15	**NASA Goddard Space Center***	Greenbelt, MD	2,550	7,300	200
16	**TransCanada PipeLines Ltd.**	Calgary, AB	2,460	750	10
17	**Time Inc.**	New York, NY	2,375	2,000	50
18	**John Deere & Co.: Waterloo Works**	Waterloo, IA	2,284	1,081	102
19	**U.S. Navy, NRAD (Naval Command & Control Ocean Surveillance Testing & Evaluation, R&D)***	San Diego, CA	2,192	7,500	1,000
20	**State of California Employment Development Department**	Sacramento, CA	2,162	5,218	0
21	**Aerospace Corp.**	El Segundo, CA	2,128	3,544	800
22	**Tandem Computers Inc.**	Cupertino, CA	2,122	4,000	0
23	**U S WEST MRG Inc.***	Englewood, CO	2,117	387	50
24	**Raytheon Co.**	Tewksbury, MA	2,050	3,000	1,000
25	**Tristar Pictures**	Culver City, CA	1,967	2,000	0
26	**J.P. Morgan & Co. Inc.**	New York, NY	1,939	6,000	1,200
27	**Johns Hopkins Medical Institutions**	Baltimore, MD	1,930	7,000	700
28	**Argonne National Laboratory**	Argonne, IL	1,920	1,000	200
29	**Motorola Inc., Paging Products Group***	Boynton Beach, FL	1,906	265	650
30	**Pfizer Inc.**	Groton, CT	1,900	2,500	35
31	**L.L. Bean Inc.**	Freeport, ME	1,828	300	7
32	**State of Kansas**	Topeka, KS	1,809	12,000	26
33	**Hallmark Cards Inc.**	Kansas City, MO	1,735	4,000	20
34	**Computer Sciences Corp.**	Norwich, CT	1,730	1,800	300
35	**Thomas Jefferson Hospital & University**	Philadelphia, PA	1,641	2,500	10
36	**Northrop Grumman Corp.***	Hawthorne, CA	1,615	2,935	0
37	**Medical University of South Carolina**	Charleston, SC	1,550	2,800	25
38	**TRW Inc.***	Carson, CA	1,532	690	10
39	**NASA, Marshall Space Flight Center***	Huntsville, AL	1,500	3,600	300
40	**Motorola Inc., Government & Space Technology Group***	Scottsdale, AZ	1,475	3,900	700
41	**Monsanto Co.**	St. Louis, MO	1,470	3,500	100
42	**Pacific Northwest National Laboratory**	Richland, WA	1,387	4,500	500
43	**University of Texas Health Sciences Center and Anderson Cancer Center**	Houston, TX	1,379	15,000	250
44	**B.C. Hydro**	Burnaby, BC	1,370	2,000	20
45	**U.S. Peace Corps**	Washington, DC	1,370	30	5
46	**Oregon Health Sciences University**	Portland, OR	1,320	5,000	7,000
47	**Bose Corp.**	Framingham, MA	1,317	450	100
48	**Cadence Design Systems Inc.**	San Jose, CA	1,315	400	2,000
49	**The Prudential Bank**	Atlanta, GA	1,285	90	10
50	**Alaska Air Group Inc.**	Seattle, WA	1,274	800	6

**Companies with multiple sites.*

nearly matches last year's percentage of sites reporting that they were "very likely" to buy them, it's clear that these sites have not begun to buy compatibles in volume. In fact, 80 percent of sites did not buy compatibles at all.

Mac applications

During the past year Apple has emphasized application areas where it has demonstrated strength, such as education, publishing and the Internet. Our survey shows undeniably that Internet content development holds great promise and that this part of Apple's application strategy may be sound.

Despite the areas of traditional strength, such as publishing, graphics, and scientific and technical fields, business-productivity applications dominate Mac usage patterns. Eighty-one percent of Macs at the respondents' sites are dominated by business-productivity applications. Nearly every site (98 percent) has at least one-quarter of its Macs doing business-productivity applications.

In the traditional areas of the Mac's strength, the Mac plays an important role at MacWEEK 200 sites. Between 25 percent and 37 percent of these sites reported that at least one-quarter of their Macs were running graphics, publishing, digital video, scientific or multimedia applications. At 9 percent of the sites, more than 90 percent or more Macs were running publishing applications, an indication that publishing is a predominant Mac use at those sites. Corresponding numbers for the Mac's other traditional areas of strength are scientific and technical with 10 percent and graphics with 6 percent.

Although perhaps not often thought of as a traditional area of strength for the Mac, 29 percent of sites reported that at least one-quarter of their Macs were running software used to develop custom applications, such as weight and balance of aircraft at Northwest Airlines Inc. (No. 118) and databases for retrieval and storage of graphics at the Los Angeles Times, a Times Mirror newspaper (No. 141).

The Internet future

Apple may be right when it says much of its growth will come from Macs being used for Internet content development. Asked which application area will experience the greatest growth at their sites in the next year, 27 percent of MacWEEK 200 sites identified Internet content development. That area was significantly ahead of even the business-productivity applications.

MacWEEK 200 sites are budgeting for this future growth. Fifty-three percent are planning to spend $50,000 to $599,000 on Mac hardware and software in the next year. This indicates that despite Apple's recent problems, Macs will continue to play an important role at these sites, with Internet content development being a key driver of Apple sales in the near future. □

MAC COMPATIBLES

A total of 1,032 Mac compatibles are installed at 40 (20%) of this year's MacWEEK 200 sites.

Base: All MacWEEK 200 sites.

Methodology

The 1996 MacWEEK 200, Education 50 and GA 25 are based on telephone surveys that took place from May 1 through June 11, 1996. Potential sites were identified from computer-generated lists of the largest Macintosh sites from MacWEEK subscriber files.

Respondents were given a standard questionnaire after being screened to ensure that they were the individuals with the most accurate information about the Macintosh installations at their sites. Only individuals with the most accurate information completed the interviews. Interviews were completed with 88 percent of the sites contacted.

This survey required about 4,000 phone calls to complete almost 600 interviews at qualified business, government and education locations. Sites were excluded from the survey if their principal product or service was the manufacturing or sale of microcomputer products. San Francisco Field Services, an independent market research company, was responsible for all survey operations. Procedures followed established market research standards.

Contributors

The MacWEEK 200 was completed under the editorial direction of Anita Malnig, director/editorial programs at MacWEEK, and under the research direction of Tim Gaughan, group research director for Mac publications at Ziff-Davis Publishing Co.

MacWEEK 200 by business

Private industry	79%
Government/military	21%

Base: All MacWEEK 200 sites.

Additional articles and case studies of MacWEEK 200 sites can be found online at http://www.macweek.com.

Users at top sites say Mac is their machine of choice

By Cliff Lehman

A look at the largest Macintosh sites in the country and Canada shows that the Mac is more than Apple's operating system, a fancy plastic box and fast chips. It is also the sum of its history and capabilities.

Despite Apple's money troubles and Microsoft Windows 95, the Mac has won favor at many large enterprises around the country.

The top Mac sites, with thousands of Macs, obviously have a legacy commitment to the platform. And most continue that commitment, although some are more cautious and at least one has made internal motions toward withdrawing official sanction for the Mac. However, it is also true that in the past the Mac's presence in many enterprises has been driven by users who still play a strong part in the Mac's acceptance at corporate, government and research sites.

At Livermore and Los Alamos labs, when users are given a choice, they prefer the Mac.

Users have a say

At Lawrence Livermore National Laboratory, the No. 1 site in the MacWEEK 200, for the past three years and running, users control which platforms the lab buys.

"The people at the lab make their own choices independent of some dictator setting a standard," said Dieter Fuss, program leader of the distributed computing support program. "They can choose to use Windows 95 or stay with Unix or the Mac or whatever they are familiar with. I don't see any big movement to Windows 95 or NT at this point."

At Los Alamos National Laboratory (No. 2), workgroups set their own standards, said Karen Rodney, Mac support team leader.

"The number of Macs seems to be going up," Rodney said. "One reason for that is that since the Mac can run both Windows and Mac software, it's perceived as a two-for-one buy." In fact, the Macs at Los Alamos rose by 400 since last year's MacWEEK 200 survey.

Rodney also cites the Mac's lighter support needs as a motivation. "We just had some metrics graphed and found that Macs and PCs recorded about the same number of phone calls but that Mac support calls were much shorter," she said. And, she said, Los Alamos has a disproportionate number of Windows support technicians compared with the number of Mac technicians.

Shaky platform or user bedrock?

At those enterprises where central management has made noises about purging Macs, the users themselves still have a lot of say.

"There is a big controversy now because the corporate level has told us that the Mac is no longer a supported platform," said Tom Powers, project administrator in aircraft engineering support at Federal Express Corp. (No. 9).

"But the Mac was never supported anyhow because IS was mainframe-oriented," Powers said. "We've always supported ourselves, and we have one of the more successful LANs and WANs in the company."

In addition, Powers said, the sales department has just committed to the Mac and deployed more than 1,000 PowerBooks in the past eight months (see story, right).

MIKE MCDERMOTT/BLACK STAR

According to Karen Rodney, Mac support team leader at Los Alamos National Laboratory (No 2 on the MacWEEK 200 list), Macs require less support than PCs.

Research

Many Macs are found in labs, and for the labs conducting gene research, Macs are most often the machine of choice.

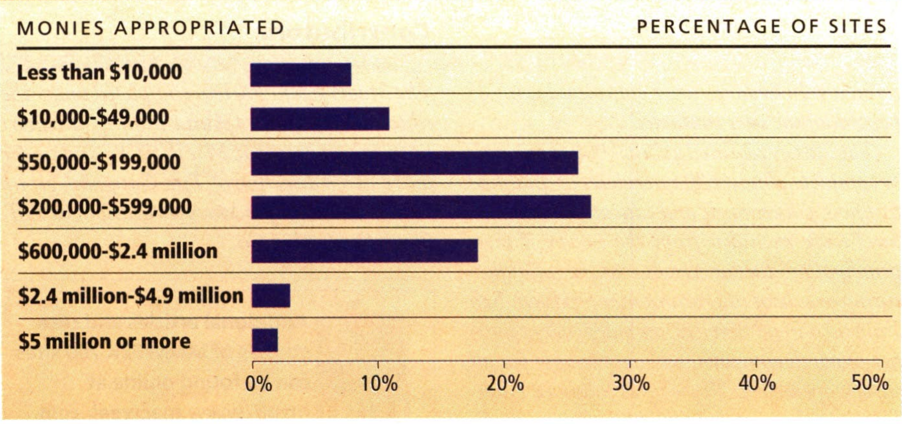
At the Mount Sinai Medical Center and School of Medicine (No. 11), Lou Hernandez, Macintosh systems specialist, said Macs get used for everything from word processing to running lab instruments.

"We have a very big commitment to Macs," Hernandez said. "We have many new Mac purchases, and we are a research facility, so a lot of Macs — more than half — are in labs."

Macs are used in the labs for image processing through electron microscopes, phosphor imaging, DNA sequencing, data acquisition and doing screen captures, Hernandez said.

See Top sites, Page 54

Budget plans for Mac hardware and software in the next year



Base: All MacWEEK 200 sites; 5% did not know or did not respond.

Federal Express sales reps take Macs on the road

By Cliff Lehman

Like Xerox and Kleenex, FedEx has practically become a generic term for a product — and it's not because it has an "x" in its name.

Federal Express Corp. (No. 9 on the MacWEEK 200 list) has relied on using computing technology for its success in taking orders and tracking packages to destinations around the world. At any given moment Federal Express can tell you where your package is; what vehicle, plane or container has it; and when it will reach its destination. Now the company is putting some of that package data into the hands of its sales force and turning it into a means to provide more efficient customer service.

FedEx brought on PowerBook 540 machines to help with sales, service automation.

The new program, which began its rollout in fall 1995 and was completed in May, gives the Federal Express sales force PowerBook 540 machines, Apple StyleWriter 1200 printers and external CD-ROM drives along with a CD containing a database and two pieces of custom software used to fill several needs in sales automation, sales presentation and customer service.

The system, which was developed in HyperCard, has already yielded customer service and productivity increases, according to Pete Potter, manager of global sales training for the ramp-up of the sales-automation system.

The company did not expect the system to immediately result in a lot of closed deals, Potter said. However, productivity has other measures. "We [think] that being able to fax or print out a brochure or customize a proposal for a client while in the field [will] increase productivity by cutting down on footwork," Potter said. Federal Express, he said, expected the result to be an increase in the number of customer calls. However, he

See FedEx, Page 56

“It’s totally changed my perception of reality.”

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Macs keep SLAC on course

The folks at the Stanford Linear Accelerator Center (No. 63 on the MacWEEK 200 list) know a thing or two about science and technology. Formed in 1966 and the recipient of three Nobel prizes, the high-energy physics laboratory is run by Stanford University for the U.S. Department of Energy. Among its claims to fame: identifying the quark as one of the fundamental components of the universe.

What catches visitors' attention at the Menlo Park, Calif., center, though, is SLAC's most visible research facility: a two-mile, enclosed concrete "track" on which an underground and shielded electron beam "rides analogous to a surfer riding a wave," said SLAC systems analyst Brian Lalor. "Because of the lab, we can do many kinds of experiments," he said. "Most recently, we collided electrons and positrons and watched what happened." And the Mac took part in helping to control the electron beam.

SLAC uses Macs, along with a host of other platforms, for administrative support of the lab, handling the nitty-gritty control of the electron beam, and collecting research on DNA and the AIDS virus via the Internet.

"The Mac also has a wide use in our environmental-protection program, making sure the lab is in compliance with environmental laws," Lalor said. "There are a lot of things companies have to do to stay in compliance, so we've developed our own databases for tracking hazardous waste and are running them on the Macintosh."

The 1,171 Macs in use by SLAC's 1,500-member staff range from IIci machines to Power Macs. Although it has developed a few mission-critical programs, the center tries to use off-the-shelf applications whenever possible, Lalor said, "because it's just too expensive to develop custom applications."

Among the staples the lab uses are Netscape Navigator and Microsoft Word and Excel, as well as e-mail packages QuickMail from CE Software Inc. and Eudora from Qualcomm Inc.

All SLAC machines are connected to the Internet so that staff members can collect and share data with scientists around the world. The only concern is making sure that all networked Macs — as well as other machines — are safe from outside predators. Because of the sensitive nature of some of its work, Lalor said, the lab takes security seriously to ensure it is not vulnerable to break-ins over the Internet.

Lalor said the Mac population has grown steadily over the years. "We have a lot of freedom to choose the best machine that can get the job done," he said. "If one group decides that Macs are better for them than another machine, then they'll get Macs."

Why would some of the best and brightest minds in science choose the Mac over, say, having their own personal Cray?

"It's very easy for someone to use a Mac," Lalor said. "The user interface is more elegantly designed than a Windows machine. We've had some people come join our group, and they can learn the Mac very quickly."

And after they get used to the Mac, users are reluctant to give it up. "I'd say many users get hostile if they think it's going to be taken away from them," he said. "It's amazing how otherwise congenial people can get agitated. Most users are extremely loyal to the Mac, and it would be difficult to change. That's why we have no plans to switch over from the Mac to any other one platform."

— By Connie Guglielmo

Damping Rings
Linear Accelerator
Shops
Central Laboratory Complex
Main Control Center
End Station B
End Station A
SSRL Complex

The Stanford Linear Accelerator Center (No. 63 on the MacWEEK 200 list) marks the landscape along California's Highway 280 in Menlo Park.

If you're interested in finding out about SLAC, visit its Web site at http://www.slac.stanford.edu.

Top sites

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David Bishop, professor of human genetics and director of the Human Genetics DNA Core Facility at Mount Sinai, runs an almost all-Power Mac 7500 facility.

The DNA Core Facility houses a DNA Sequencer Model 377 (from Applied Biosystems Division of Perkin-Elmer Corp.), which is run by a Power Mac 7100 and is the lab's workhorse. Researchers bring DNA samples to the lab, where technicians load the samples into the system, which separates the sequences and gathers the data. The Sequencer software component then analyses the sequences and compares them to other sequences. "Investigators can get the results over the network on their own lab Macs," Bishop said.

The lab also has a Sun SPARCstation 20 for analyzing and storing DNA sequences. "We interface the SPARCstation with MAE [Macintosh Application Environment from Apple] so we have a full-fledged Mac computer running on the Sun workstation," Bishop said.

"It's quite stable and fast, and we use it as another Mac in the lab," he said. "It makes it easier to move things back and forth to the Sun because it's all Mac and you can network it, too."

Intranet and Internet

The Mac's ease of configuration, networking and support all contribute to the platform's use in the relatively new areas of developing content for the Internet and creating intranet systems.

Not surprisingly, many of the largest sites have created or are taking steps toward creating intranet systems. In fact, according to the survey, 80 percent of MacWEEK 200 sites already have intranets in place. "There has been a resurgence of respectability for the Mac platform for its ease of use and simplicity for use with the intranet," said Charles Mokotoff, computer specialist in the Division of Computer Research and Technology at the National Institutes of Health (No. 6).

"A lot of the work I am involved with is

See Top sites, Page 56

Percentage of sites with 90% or more Macs* running these applications

APPLICATION	% OF SITES
Business productivity	81%
Science/technical	10%
Publishing	9%
Custom applications	7%
Graphics	6%
Multimedia	3%

*Base: All MacWEEK 200 sites. *Includes compatibles.*

Percentage of sites with 25% or more Macs* running these applications

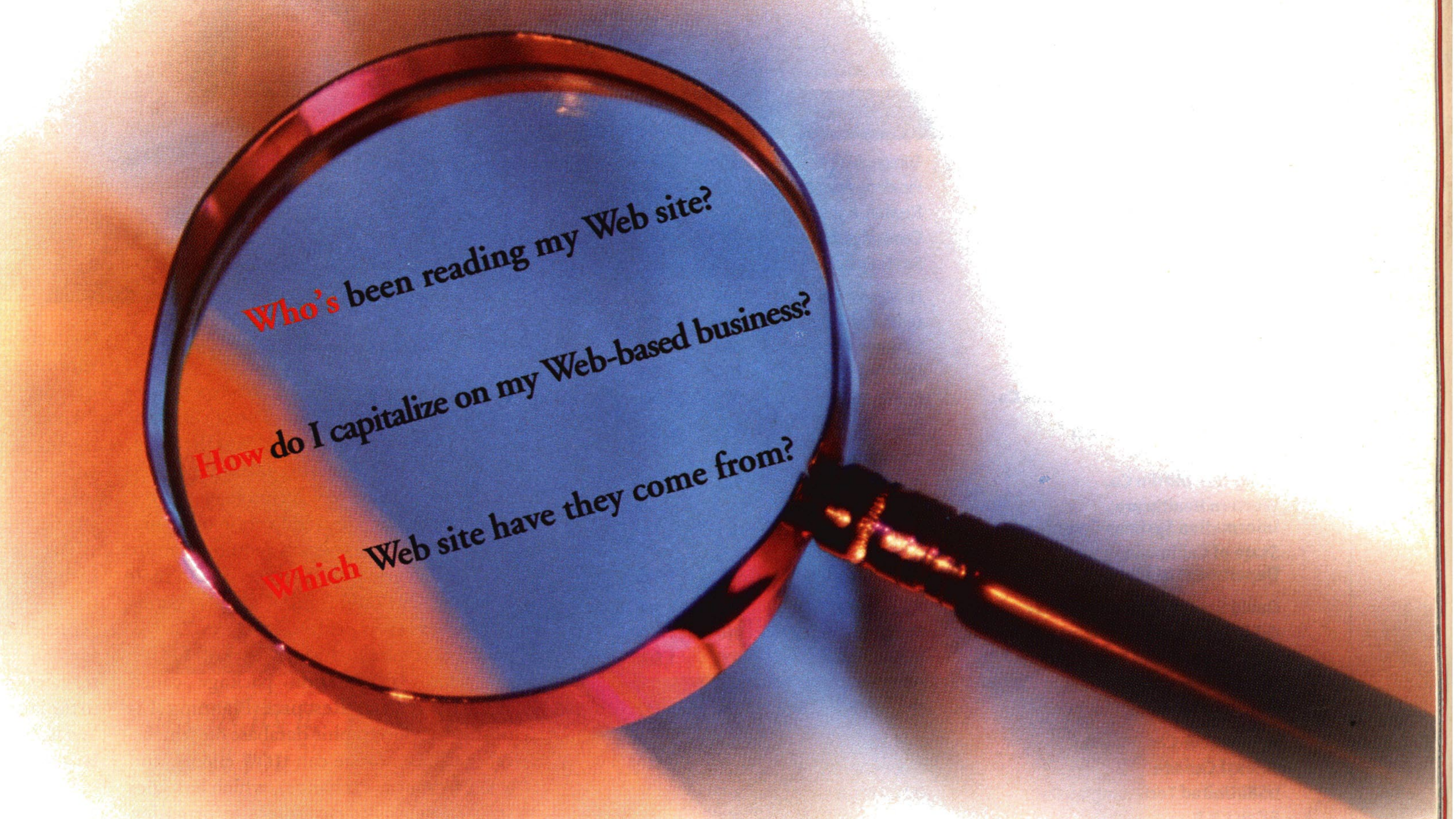
APPLICATION	% OF SITES
Business productivity	98%
Graphics	37%
Digital video	37%
Science/technical	30%
Custom applications	29%
Publishing	26%
Multimedia	25%
CAD	10%
Internet content development	10%
Internet site management	10%

*Base: All MacWEEK 200 sites. *Includes compatibles.*

	MACWEEK 200 SITE	LOCATION	MACS	NON-MAC PCS	WORK-STATIONS
51	**Pizza Hut Inc.**	Wichita, KS	1,263	100	0
52	**Home Box Office, Subsidiary of Time Warner Inc.**	New York, NY	1,261	200	17
53	**State of Texas: Comptroller of Public Accounts**	Austin, TX	1,246	700	1,500
54	**U.S. Department of the Interior**	Washington, DC	1,213	6,300	0
55	**KPMG Peat Marwick Thorne**	Toronto, ON	1,210	105	0
56	**BGP Services**	Cincinnati, OH	1,208	800	10
57	**New York University Medical Center**	New York, NY	1,200	5,000	24
58	**Pacific Bell Directory**	San Francisco, CA	1,200	900	200
59	**Science Application International Corp.**	San Diego, CA	1,200	2,800	400
60	**Lucent Technologies Inc.**	Holmdel, NJ	1,192	3,000	2,000
61	**Dorsey & Whitney**	Minneapolis, MN	1,180	30	5
62	**WGBH Educational Foundation**	Boston, MA	1,175	60	4
63	**Stanford Linear Accelerator Center**	Menlo Park, CA	1,171	800	85
64	**BBN Corp.**	Cambridge, MA	1,159	1,000	600
65	**Rand Corp.**	Santa Monica, CA	1,141	539	137
66	**Sandia National Laboratories**	Livermore, CA	1,135	400	400
67	**Lawrence Berkeley National Laboratory**	Berkeley, CA	1,098	1,200	200
68	**U.S. Navy: Naval Undersea Warfare Center***	New London, CT	1,077	1,049	552
69	**U.S. Navy: Naval Undersea Warfare Center***	Newport, RI	1,077	1,049	552
70	**SRI International**	Menlo Park, CA	1,075	600	110
71	**Electric Power Research Institute**	Palo Alto, CA	1,066	375	40
72	**Fermi National Accelerator Laboratory**	Batavia, IL	1,066	600	3,000
73	**Northrop Grumman Corp.***	Bethpage, NY	1,055	2,000	500
74	**University of Chicago Hospitals**	Chicago, IL	1,050	1,500	200
75	**Perkin-Elmer Corp.**	Foster City, CA	1,040	400	25

**Companies with multiple sites.*

TAKE A CLOSER LOOK AT YOUR WEB SITE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How do I capitalize on my Web-based business?
Which Web site have they come from?

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More importantly, Bolero isn't just about logging. It also captures information in real-time and stores the data in its own industry-standard SQL database so you can begin manipulating data and analyzing trends immediately. Or, if you prefer, you can optionally use Bolero with your Oracle database.

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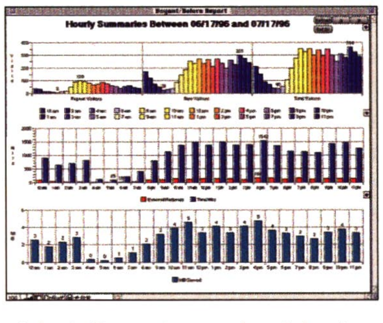
- Automatic generation of hourly, daily, weekly and monthly summaries
- Ability to perform aggregate summaries of any time period so that you can analyze your trends over an extended period of time
- Built-in Domain Name resolution that takes the load off your Web server
- Ability to log multiple Web servers simultaneously, allowing you to compare the activity and performance of all your Web servers
- Includes versatile report generation tools—Voyant and CLEAR:Access



In addition, Bolero provides numerous pre-defined reports and graphs so you can begin analyzing your Web activities immediately. Plus, Bolero's open SQL database gives you the ability to generate customized reports, with unlimited reporting options.

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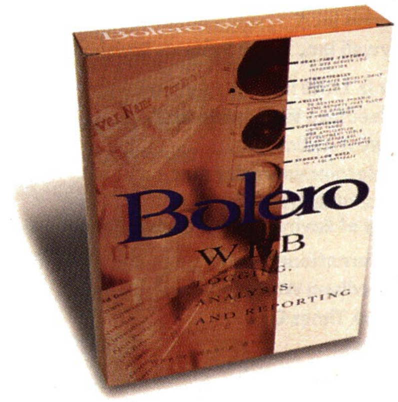

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Top sites

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information dissemination via the Web," Mokotoff said. "We are using the Internet to send out information worldwide and now we're working toward making an intranet. We do a lot of Web authoring on the Mac and the servers are Mac, although the intranet will be on an NT server."

Mokotoff also credits Internet applications for creating the new sense of the Mac as an equal player on the network.

"Thanks to the rise of the Inter- and intranet, the Mac is more than an equal partner in sharing information," Mokotoff said.

New challenges and applications can strengthen the Mac's hold on its user base despite Apple's corporate setbacks. So if the top Mac sites are any indication, when the next new computing wave comes pulsing down the electronic turnpike, the Mac's loyal users just may repeat history. □

	MACWEEK 200 SITE	LOCATION	MACS	NON-MAC PCS	WORK-STATIONS
76	**Missile Systems Co., Hughes Aircraft Co.**	Tucson, AZ	1,022	6,717	360
77	**U.S. Army ARDEC**	Picatinny Arsenal, NJ	1,007	3,071	452
78	**Bristol-Myers Squibb Co.**	Newton, PA	1,000	1,400	250
79	**Charles Stark Draper Laboratory Inc.**	Cambridge, MA	998	450	230
80	**United Airlines**	San Francisco, CA	998	50	30
81	**U.S. Department of Defense**	Ft. Meade, MD	996	18,000	16,000
82	**U S WEST MRG. Inc.***	Omaha, NE	979	52	15
83	**Bank of Bermuda**	Hamilton, Bermuda	960	285	25
84	**Rhode Island Hospital**	Providence, RI	950	1,300	12
85	**Magnavox Electronics Systems Co.**	Ft. Wayne, IN	943	1,505	400
86	**Northrop Grumman Corp.***	Linthicum, MD	929	6,000	200
87	**BBDO, N.Y.**	New York, NY	928	6	3
88	**Houghton Mifflin Co.**	Boston, MA	922	1,284	37
89	**Western Healthcare Information Systems Consultants**	Pacifica, CA	921	1,150	70
90	**State of California, Department of Motor Vehicles**	Sacramento, CA	920	1,850	5
91	**David Sarnoff Research Center**	Princeton, NJ	911	200	600
92	**G T E Government Systems Corp.***	Mountain View, CA	910	375	25
93	**G T E Government Systems Corp.***	McLean, VA	909	1,809	40
94	**Dana Farber Cancer Institute**	Boston, MA	904	0	0
95	**Northern Telecom***	Nepean, ON	884	212	190
96	**Avis Rent-A-Car Systems***	Tulsa, OK	880	30	4
97	**Telesat Canada**	Gloucester, ON	871	250	25
98	**USBI/United Technologies Corp.**	Huntsville, AL	855	30	6
99	**F C B/ L B P**	New York, NY	853	80	4
100	**American Express Co.**	New York, NY	850	500	20
101	**Avis Rent-A-Car Systems***	Garden City, NY	850	350	20
102	**U.S. Navy: Naval Surface Warfare Center, Dahlgren Division***	Dahlgren, VA	850	2,000	500
103	**Turner Broadcasting System Inc.**	Atlanta, GA	833	700	0
104	**City of Glendale**	Glendale, CA	832	750	20
105	**Condé Nast Publications Inc.**	New York, NY	826	1,000	30
106	**US Sprint Communications Co., LP**	Westwood, KS	815	1,000	3
107	**Ameritech Cellular and Paging Services***	Hoffman Estates, IL	800	1,600	30
108	**Allergan Inc.**	Irvine, CA	795	800	25
109	**U.S. National Ocean Service**	Silver Spring, MD	780	500	350
110	**Department of Veterans Affairs, Veterans Health Administration, VA Palo Alto Health Care System**	Palo Alto, CA	770	600	8
111	**Northrop Grumman Corp.***	Pico Rivera, CA	766	2,000	500
112	**Chapman & Cutler**	Chicago, IL	757	5	17
113	**City of San Jose**	San Jose, CA	751	1,800	40
114	**E-Systems Inc.***	St. Petersburg, FL	750	400	100
115	**Honeywell Inc., Space Systems Division***	Clearwater,FL	750	487	40
116	**Arthur D. Little Inc.**	Cambridge, MA	730	750	20
117	**DDB Needham Worldwide Inc.***	Dallas, TX	726	12	0
118	**Northwest Airlines Inc.**	St. Paul, MN	720	6,000	600
119	**ADC Telecommunications Inc.**	Minnetonka, MN	718	962	300
120	**Province of British Columbia, Ministry of Environment, Lands & Parks**	Victoria, BC	700	500	0
121	**BSW International**	Tulsa, OK	685	196	43
122	**DDB Needham Worldwide Inc.***	Chicago, IL	683	12	4
123	**New York Times Co.**	New York, NY	676	2,000	75
124	**Synopsys Inc.**	Mountain View, CA	675	225	600
125	**Wells Fargo Bank, N.A.**	San Francisco, CA	656	1,000	750
126	**VISA, U.S.A. Inc.**	San Mateo, CA	653	3,500	20
127	**British Columbia Automobile Association**	Burnaby, BC	650	0	0
128	**Credit Lyonnais Securities USA Inc.**	New York, NY	650	400	50
129	**Becton Dickinson & Co.**	San Jose, CA	642	100	3
130	**Booz, Allen & Hamilton Inc.**	New York, NY	641	7	0

**Companies with multiple sites.*

JIM CHAPPELL/BLACK STAR

Pete Potter was manager of global sales training during Federal Express' (No. 9 on the MacWEEK 200 list) ramp-up of the new sales automation system that equipped sales representatives with PowerBooks and StyleWriters.

FedEx

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added, the system was still too new to produce hard numbers. For Potter, the first sign that the system worked was the quick reversal of the "reluctance factor," which is resistance to using new technology.

"The most obvious indication of its success is that a salesperson would be more likely to let you pull their teeth than their computer," Potter said. "These PowerBooks hold their professional lives."

The software includes Microsoft Office; a custom presentation package called PRPL (Personal Resource Planning Library); a demographic database on which a sales representative can track clients; and REX (resource exchange), which lets sales staff download customer information from company mainframe databases.

PRPL includes a calendar, a tracker for contacts and accounts, and forms for sales representatives to write contracts while they are sitting with customers, Potter said. "And with REX they can get data dumps during the week and stay up on revenue, package destinations and any other kind of information the customer might need regarding their account."

According to Potter, the software also includes demographic information and movies of customer testimonials that sales representatives can put together with information about current Federal Express services to provide a presentation tailored to the customer. "It is aimed at all customer levels, but of course if you go in front of a large company, you have a team," he said.

Federal Express is expanding the program, he said, and hopes to eventually have its entire worldwide sales force on the PowerBook-based system. □

	MACWEEK 200 SITE	LOCATION	MACS	NON-MAC PCS	WORK-STATIONS
131	**Holiday Inn Worldwide**	Salt Lake City, UT	640	120	5
132	**Ernd Research Inc.**	Seattle, WA	638	400	46
133	**Foote, Cone & Belding***	Chicago, IL	636	185	0
134	**Osler, Hoskin & Harcourt**	Toronto, ON	624	10	800
135	**U S WEST MRG Inc.***	Portland, OR	620	0	0
136	**Covey Leadership Center**	Provo,UT	615	35	1
137	**Leo Burnett Co. Inc. and Capps Studio L.P.**	Chicago, IL	614	1,801	8
138	**Chiron Corp.**	Emeryville, CA	612	3,500	40
139	**Fox Broadcasting Co.**	Los Angeles, CA	604	1,600	0
140	**E-Systems Inc.***	Greenville, TX	600	2,000	200
141	**Los Angeles Times, a Times Mirror newspaper**	Los Angeles, CA	600	2,000	24
142	**U S WEST Communications Inc.**	Portland, OR	595	5	15
143	**ITT Hartford Life Insurance Co.**	Simsbury, CT	591	1,700	5
144	**Chevron Products Co., a division of Chevron Corp.**	Richmond, CA	585	450	5
145	**Environmental Systems Research Institute**	Redlands, CA	581	700	600
146	**County of Orange**	Santa Ana, CA	580	9,000	100
147	**Fasken, Campell & Godfrey**	Toronto, ON	580	5	0
148	**Nichols Research Corp.**	Huntsville, AL	580	50	166
149	**County of Los Angeles: Office of the Assessor**	Los Angeles, CA	572	1,300	40
150	**Meredith Corp.**	Des Moines, IA	554	728	11
151	**Genzyme Corp.**	Cambridge, MA	550	300	5
152	**U.S. Food and Drug Administration, Center for Biologics Evaluation & Research**	Rockville, MD	550	650	28
153	**Advanced Technology Laboratories Inc.**	Bothell, WA	547	1,275	300
154	**U.S. Geological Survey, a Bureau of the Interior Department***	Menlo Park, CA	546	300	250
155	**BP Exploration Inc.**	Houston, TX	538	111	207

**Companies with multiple sites.*

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"I lost my disks. Don't you have a back-up copy?"
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Boon to business or boondoggle, the Internet grows

By Jim Leeke

Baseball philosopher Yogi Berra once observed that a certain nightclub was so crowded that nobody went there.

Likewise the Internet is crowded with plenty of companies, organizations and government agencies, if only in a hazy belief that it's important to be seen there. A successful site, however, offers definite purpose and value. Often, too, it has a touch of the intangible, something akin to entertainment or art.

INTRANETS

80% of this year's MacWEEK 200 sites have intranets installed.

Base: All MacWEEK 200 sites.

This drive for the intangible has clearly affected MacWEEK 200 sites: Twenty-seven percent listed Internet content development as the application with the greatest growth in the next year, ahead of any other application.

Net gain

The Internet represents "as fundamental a change to the way we communicate as anything that's come along," said Paul Griscti, supervisor of communications for Honeywell Inc., Space Systems Division (No. 115 on the MacWEEK 200 list). "We're probably looking at this in much the same way communicators were looking at a thing called television in the early 1950s and asking, 'Well, is this going to work for us or not?' "

It's certainly working for the government, which created the Internet two decades ago. Today, scores of federal agencies have Web sites. The U.S. National Ocean Service (No. 109, http://www.nos.noaa.gov), for example, uses the Internet "heavily, for virtually everything," including transmitting scientific data, streamlining grant applications and keeping congressional aides abreast of the agency's activities, said Lawrence Charters, computer specialist and network manager. "It's one of those things that if we didn't have, we'd have to invent."

Government sites tend to be Spartan, heavy on text and light on graphics. "The public is paying for it," Charters said, "and we shouldn't come up with barriers to getting information," such as designing pages for a specific Internet browser or posting large images that take time and a fast modem to download efficiently. While that public focus is constant, the nature of the National Ocean Service site has gradually shifted. "Initially, the information was mostly bureaucratic, 'This is the name of our service, these are our divisions, and this is a mission statement,' " he said. "Now it's becoming more topical. People can look up things on fish, for example, rather than having to know to go to this department and this branch and talk to Joe."

With their straightforward approach, government sites have certain parallels with think tanks and research groups. The renowned Woods Hole Oceanographic Institution (No. 161, http://www.whoi.edu), has been "involved in developing the Net from the beginning," said B.L. Owens, information systems associate. Today the institution is still using the Internet the way it started using it, Owens said — as an exchange of ideas among scientists.

The institution's 3-year-old Web site includes links to places of interest for users doing oceanographic research, she said. Links include the Marine Biological Laboratory, the U.S. National Oceanographic and Atmospheric Administration, and the U.S. Geological Survey.

"We're really thrilled with what's happening with our libraries, because that's all online now, too," Owens said. Although the Internet is much easier to use and offers vastly more data today that a decade ago, she said some veteran scientists "get frustrated with some of the stuff they have to go through to get places anymore." The Internet is no longer the "small and closed" place they once knew, she said, and digital traffic jams are especially noticeable when people on the West Coast sign on at about midday in the East. Owens has given up attempting to visit some sites from late morning until after 5 p.m Eastern time.

Although the Internet started as a tool for government and research, it has long since passed into the hands of business and industry. Here things get trickier and harder to define, with tougher decisions about what to do with the Internet. Many sites are no more than expensive public relations tools, with awkward addresses to be added in small type to print ads and television commercials. Profit remains elusive. As Owens put it, "Let me know if you figure out how to charge for the Net."

Are we making money yet?

Some companies have mapped out ways of charging money for Internet services. Meredith Corp. (No. 150), a magazine and broadcasting company, operates several Web sites, including those for Better Homes & Gardens, Ladies Home Journal and Midwest Living magazines, and local television stations. The largest site, @griculture Online, commonly called Ag Online (http://www.agriculture.com), is a revenue-generating site run by Successful Farming magazine.

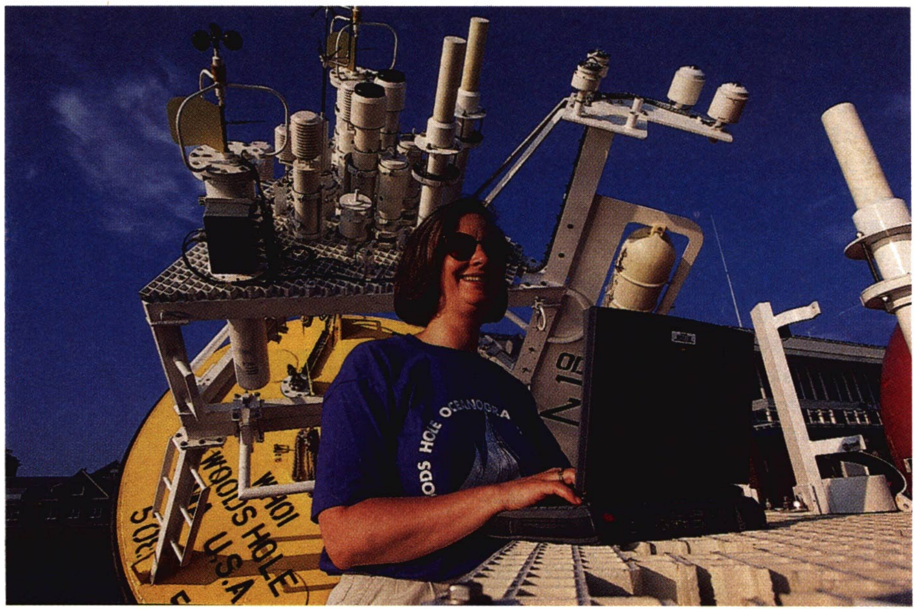
Meredith has what it calls Web commercial partners, or online sponsors. For a $6,000 monthly "rental fee" (roughly the cost of a full-page, four-color ad in a trade magazine), a partner gets an advertising banner on the Ag Online home page, banners on other key pages and a hypertext link to its own Web site. The number of partners is in the single digits, according to Jim Cornick, publisher of Successful Farming, but a dozen other companies are either signing up or expressing interest.

Meredith built Ag Online around a solid business plan, "much like for the start-up of a new magazine," Cornick said. "If we can't make money out of it, we have no business being there." Launched in May 1995, Ag Online's popularity among farmers (47.2 percent of whom, Cornick said, own personal computers) sprouted like sown seed. In May 1996, despite three days of server problems and the start of the planting season, the site had more than 1.2 million hits. The plan calls for Ag Online to be in the black by the end of its third year, Cornick said, "but we think we'll get there quicker."

For every site that is good (never mind profitable), there are perhaps dozens filled with gibberish or attractive fluff. Owens dismisses a site operated by a major technology vendor as "completely useless" when it comes to downloading software patches or upgrades. This site becomes valuable only when a visitor knows exactly which files to look for and where, she said. "Usually that involves getting a human on the line," she said. That's a poor Web site.

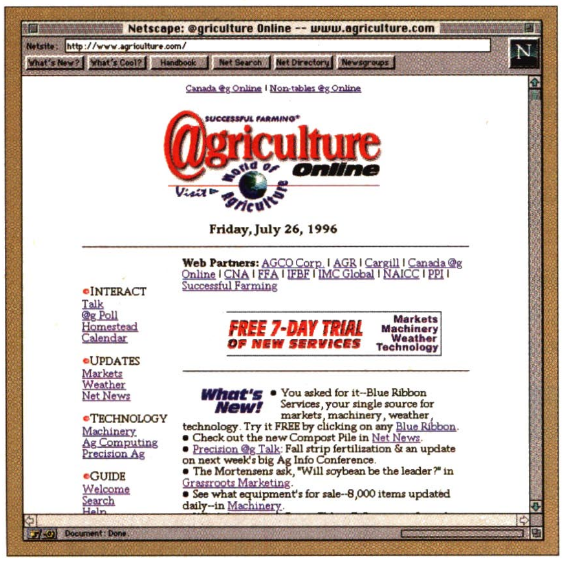
So what constitutes a good site? Patrick Foster, LAN support coordinator for Turner Broadcasting System Inc. (No.

See Internet, Page 60



RICK FRIEDMAN/BLACK STAR

B.L. Owens, information systems associate at the Woods Hole Oceanographic Institution (No. 161 on the MacWEEK 200 list), said she is thrilled with how available information is on the Internet.



Friday, July 26, 1996

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@griculture Online, run by Successful Farming magazine, has been successful at generating revenue.

Percentage of sites projecting most growth in these apps in the next year

APPLICATION	% OF SITES
Internet content development	27%
Business productivity	19%
Custom applications	16%
Multimedia	6%
Science/technical	6%
Graphics	5%
Publishing	4%
CAD	3%
Digital video	1%
Internet site management	1%

Base: All MacWEEK 200 sites; 8% did not know or did not respond.

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☐ 01. Yes ☐ 02. No

1 What is your organization's primary business activity at this *entire* location?

(Select one only) Write Answer Here ➨ ☐

Non-Computer Related
01. Graphic Arts
02. Publishing
03. Advertising, Public Relations, Promotion
04. Digital Media Development
05. Entertainment/ Broadcast
06. Commercial Printer
07. Service Bureau/ Pre-Press
08. Aerospace
09. Architecture, Engineering
10. Telecommunications
11. Government
12. Manufacturing
13. Education: College/ University/Trade
14. Education: High School/Elementary
15. Finance: Banking, Accounting, Insurance, Real Estate, Legal
16. Health, Medical
17. Non-Computer Retailer, Wholesaler, Distributor
18. Research and Development
19. Agriculture, Mining, Construction, Oil
20. Transportation, Utilities

Computer Related
22. Manufacturer (Computers, Software, Peripherals)
23. VAR, VAD, Systems/ Network Integrator
24. Retailer/Distributor
25. Systems House/Data Processing Service
26. Computer Consultant
27. Other Businesses and Services

99. Other________ (please specify)

2 What is your job function?

(Select one only) Write Answer Here ➨ ☐

A. Networking/Data Communications
B. MIS/DP/Information Systems
C. Systems Engineering
D. Internet/WWW Site Development
E. Telecommunications
F. Graphic Arts/Design
G. Production/Pre-Press
H. Video Production
I. Audio Production
J. Communications/ Publishing/Public Relations/Advertising
K. Engineering/Architecture
L. Science/Research & Development
M. Education/Training/ Development
N. Manufacturing/Operations/ Production/Quality Control
O. Administration/ Management/ Personnel
P. Accounting/Finance/ Legal
Q. Sales/Marketing
R. Purchasing
S. Consulting
Z. Other________ (please specify)

3 Which of the following brands of systems and/or applications software do you have installed at this *entire* location? (Check all that apply)

Operating Systems
☐ 01. System 7 or higher
☐ 02. Unix/Xenix/AUX/AIX
☐ 03. Windows 3.x
☐ 04. Windows NT
☐ 05. Windows 95
☐ 06. NeXTStep
☐ 07. Solaris
☐ 08. Other________ (please specify)

Network Operating Systems
☐ 10. Novell NetWare
☐ 11. Unix/NFS
☐ 12. Banyan VINES
☐ 13. AppleShare
☐ 14. DEC PathWorks
☐ 15. Other________ (please specify)

Groupware
☐ 16. Lotus Notes
☐ 17. Windows for Workgroups
☐ 18. FirstClass
☐ 19. Novell GroupWise
☐ 20. Other________ (please specify)

Database Engines
☐ 22. FileMaker
☐ 23. Oracle
☐ 24. Sybase SQL Server
☐ 25. Ingres
☐ 26. Informix
☐ 27. 4D Server
☐ 28. DB2
☐ 29. Other________ (please specify)

On-Line Services
☐ 31. America Online
☐ 32. CompuServe
☐ 33. Prodigy
☐ 34. Internet
☐ 35. Other________ (please specify)

Internet Services
☐ 37. NetCom
☐ 38. EarthLink
☐ 39. PSI
☐ 40. BEST
☐ 41. AT&T Worldnet
☐ 42. BBN
☐ 43. GNN
☐ 44. Other________ (please specify)

4 Please indicate the quantities of the computers currently installed and indicate the computers planned for purchase in one year at this *entire* location.

(Write in accurate quantities for all that apply.)

USE NUMBERS ONLY

	Currently Installed (Quantity)	PLAN TO PURCHASE
Macintosh/Compatible		
Apple Power Mac 8500, 9500	1.	1. ☐
Apple Power Mac 7500, 7600	2.	2. ☐
Apple Power Mac 7200	3.	3. ☐
Apple Nu-Bus Based Power Mac	4.	4. ☐
Power Computing	5.	5. ☐
Daystar Digital	6.	6. ☐
Other Power Mac Compatible	7.	7. ☐
Macintosh Quadra, Centris	8.	8. ☐
Macintosh Performa	9.	9. ☐
Non PPC Mac PowerBook/Duo	10.	10. ☐
PPC Mac PowerBook/Duo	11.	11. ☐
Macintosh Other (II, LC, SE, etc…)	12.	12. ☐
Other Mac Compatible	13.	13. ☐
Other Desktops		
Intel/Compatible Desktop/Laptop/Notebook	14.	14. ☐
PowerPC (Non-Mac Compatible)	15.	15. ☐
Workstation (SPARC, MIPS, HP/Apollo, etc.)	16.	16. ☐
Other Microcomputers	17.	17. ☐

5A How many servers are installed at this *entire* location? (Use numbers only)

5B How many LANs are installed at this *entire* location? (Use numbers only)

5C How many Macintoshes are connected to the LANs indicated in Question 5B above?

(Use numbers only)

6A Does this location retail, resell, distribute, or function as a professional consultant for Macintosh-related products or services?

☐ YES
☐ NO

6B If you indicated YES in question 6A above, which of the following product or service categories are sold, resold, distributed or recommended at this *entire* location? (Check all that apply)

☐ 01. Host Systems (Mainframes/Minis)
☐ 02. Desktops/Portables (Micros/Workstations)
☐ 03. Networking Products (include Servers)
☐ 04. Peripheral Equipment
☐ 05. Software Products
☐ 06. Service/Support

7A Which of the following Macintosh-related products do you specify, recommend, buy or approve the purchase of? (Check all that apply)

Systems
☐ 01. Apple Macintoshes
☐ 02. Mac Compatibles
☐ 03. Intel Compatible Micros
☐ 04. Intel Servers
☐ 05. Workstations
☐ 06. Minis/Mainframes
☐ 07. PDAs
☐ 08. Pen-Based Computers

Networking/Internet
☐ 10. Internet Servers/ Web Servers
☐ 11. Mac Compatible
☐ 12. Intel Compatible
☐ 13. Workstations
☐ 14. LANs
☐ 15. WANs
☐ 16. Mac to PC Links
☐ 17. Mac to Mini/ Mainframe Links
☐ 18. Mac to Unix Workstation Links
☐ 19. Modems
☐ 20. Communication/ Network Software
☐ 21. Bridges/Routers/ Gateways
☐ 22. Hubs
☐ 23. NICS

Printers
☐ 25. Laser
☐ 26. Color Laser
☐ 27. InkJet
☐ 28. Image Setter
☐ 29. Dye Sub
☐ 30. Thermal Wax
☐ 31. Plotter

Image Input
☐ 33. Digital Camera
☐ 34. Flatbed Scanners
☐ 35. Handheld Scanners
☐ 36. Slide Scanners
☐ 37. Drum Scanners

Displays
☐ 39. 14 –17 inch
☐ 40. 19 + inch

☐ 41. Presentation Systems

Peripherals
☐ 43. UPS
☐ 44. External Speakers
☐ 45. Input Devices
☐ 46. Video Deck
☐ 47. MIDI

Storage
☐ 49. Removable Storage
☐ 50. Magneto Optical
☐ 51. RAID
☐ 52. Hard Drive 1 Gig +
☐ 53. Hard Drive < 1 Gig
☐ 54. CD Recorder

Add-In Boards
☐ 56. Memory Boards
☐ 57. Display Boards
☐ 58. Accelerator Boards
☐ 59. Video Capture/ Compression

99. ☐ None of the above

✻ Indicate additional individuals at this location who might qualify for a FREE subscription to MacWEEK:

Name________ Title________
Name________ Title________
Name________ Title________

7B Which of the following systems and/or applications software do you specify, recommend, buy or approve the purchase of? (Check all that apply)

Graphic Arts/Publishing
☐ 01. Desktop Publishing
☐ 02. Electronic Publishing
☐ 03. Painting/Drawing Programs
☐ 04. Photo Retouching
☐ 05. Page Layout
☐ 06. Illustration Programs
☐ 07. Fonts
☐ 08. Pre-Press
☐ 09. Color Management
☐ 10. Digital Video
☐ 11. Other________ (please specify)

Multimedia
☐ 13. Authoring Software
☐ 14. Video Editing
☐ 15. Sound Editing
☐ 16. Music Composition/ Editing
☐ 17. Animation
☐ 18. Clip Media (Sound and Art)
☐ 19. Other________ (please specify)

Internet/WWW
☐ 21. Browsers
☐ 22. HTML Authoring Tools
☐ 23. VRML Authoring Tools
☐ 24. Web Publishing Tools
☐ 25. Firewalls/Security
☐ 26. Transaction Processing
☐ 27. Database Connectivity
☐ 28. Other________ (please specify)

Presentation Graphics
☐ 30. Presentation Software
☐ 31. Multimedia Presentations
☐ 32. Charting Program
☐ 33. Other________ (please specify)

Design/Engineering
☐ 35. CAD/CAM
☐ 36. 2/D - 3/D Modeling
☐ 37. Simulation
☐ 38. Other________ (please specify)

Business Applications
☐ 40. Word Processing
☐ 41. Spreadsheets
☐ 42. Databases
☐ 43. Project Management
☐ 44. Accounting/Payroll
☐ 45. Groupware
☐ 46. Desktop Video Conf.
☐ 47. Document Management
☐ 48. Mapping/GIS
☐ 49. Pen-Based Applications
☐ 50. Other________ (please specify)

Systems Management
☐ 52. Operating Systems
☐ 53. Utilities
☐ 54. Applications Development
☐ 55. CASE
☐ 56. Programming Languages
☐ 57. Compilers
☐ 58. SQL Applications
☐ 59. Client Server Applications
☐ 60. Other________ (please specify)

99. ☐ None of the above

8 In which ways do the Macintoshes at your location connect to the Internet? (Check all that apply)

☐ 01. Analog Modems
☐ 02. ISDN
☐ 03. T-1/T-3/Fractional T-1
☐ 04. Cable Modems
☐ 05. ATM
☐ 06. Wireless Modems
☐ 99. Other________ (please specify)

9 If you indicated purchase involvement for computers, computer products or services in Question 7A or Question 7B, for how many Macintoshes do you have this involvement? (Select one only) Write Answer Here ➨ ☐

01. 2000+
02. 1000-1999
03. 500-999
04. 100-499
05. 50-99
06. 20-49
07. 10-19
08. 5-9
09. 1-4
99. None

10 For what applications are the Macintoshes at your location used? (Check all that apply)

☐ 01. Graphic Arts/Publishing
☐ 02. Presentation Graphics
☐ 03. Multimedia
☐ 04. Design/Engineering
☐ 05. Business Applications
☐ 06. Systems Management
☐ 07. Internet Development
☐ 99. Other________ (please specify)

11 Over the course of one year, do you specify, recommend, buy, sell, resell or approve the purchase of host systems, desktops, networking products, peripheral equipment and/or software worth: (Check one box per column)

	Host Systems (Mainframe/ Minis)	Desktop/ Portables (Micros/ Workstations)	Networking Products (include Servers)	Peripheral Equipment	Software Products	Service/ Support
$10,000,000 or more	1. ☐	14. ☐	27. ☐	40. ☐	53. ☐	66. ☐
$5,000,000 to $9,999,999	2. ☐	15. ☐	28. ☐	41. ☐	54. ☐	67. ☐
$2,500,000 to $4,999,999	3. ☐	16. ☐	29. ☐	42. ☐	55. ☐	68. ☐
$1,000,000 to $2,499,999	4. ☐	17. ☐	30. ☐	43. ☐	56. ☐	69. ☐
$600,000 to $999,999	5. ☐	18. ☐	31. ☐	44. ☐	57. ☐	70. ☐
$400,000 to $599,999	6. ☐	19. ☐	32. ☐	45. ☐	58. ☐	71. ☐
$200,000 to $399,999	7. ☐	20. ☐	33. ☐	46. ☐	59. ☐	72. ☐
$100,000 to $199,999	8. ☐	21. ☐	34. ☐	47. ☐	60. ☐	73. ☐
$50,000 to $99,999	9. ☐	22. ☐	35. ☐	48. ☐	61. ☐	74. ☐
$25,000 to $49,999	10. ☐	23. ☐	36. ☐	49. ☐	62. ☐	75. ☐
$10,000 to $24,999	11. ☐	24. ☐	37. ☐	50. ☐	63. ☐	76. ☐
Less than $10,000	12. ☐	25. ☐	38. ☐	51. ☐	64. ☐	77. ☐
None of the above	☐ 13.	☐ 26.	☐ 39.	☐ 52.	☐ 65.	☐ 78.

Your Signature________

Title________ Date___/___/___

PLEASE BE SURE THAT ALL QUESTIONS ARE ANSWERED.

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Internet

From Page 58

103), said, "I don't know that anybody really knows what the point is, or what makes a good site." Yet good sites do exist. All in all, a good site seems to parallel the well-known description of pornography: You know it when you see it.

"You've almost got to build in some type of entertainment value," said Griscti of Honeywell's Space Systems Division, which will launch its own Web site this summer. "It has to be pleasing to the eye to begin with. Because of its nature, it's going to be accessed by everybody. But you also have to make sure you have a targeted message for potential customers — especially if you're in a technological area like ours."

Space Systems' new site, for instance, will provide more targeted, detailed information on its history and products — processors for satellites and launch vehicles — than the parent Honeywell site (http://www.honeywell.com) would allocate to just one of its many business units. Another Honeywell company that already has a dedicated Web site posts up-to-the-minute technical manuals for aviation-industry customers.

At Ag Online, Cornick said, commercial partners believe that "farmers aren't interested in PR releases, quarterly reports, or who is president and vice president." They want something more useful. One partner, Cargill Inc., for example, offers interactive bulletin boards where agronomists answer questions and enter discussion groups. One Cargill page provides a hybrid seed-corn search engine; farmers can enter their location, soil types, crop rotation and other data, then learn which hybrids are best for their fields. Targeted devices like this offer "a tremendous advantage to building loyalty," Cornick said. "People are tired of surfing, and getting lost, and paying big phone bills."

Creating sites

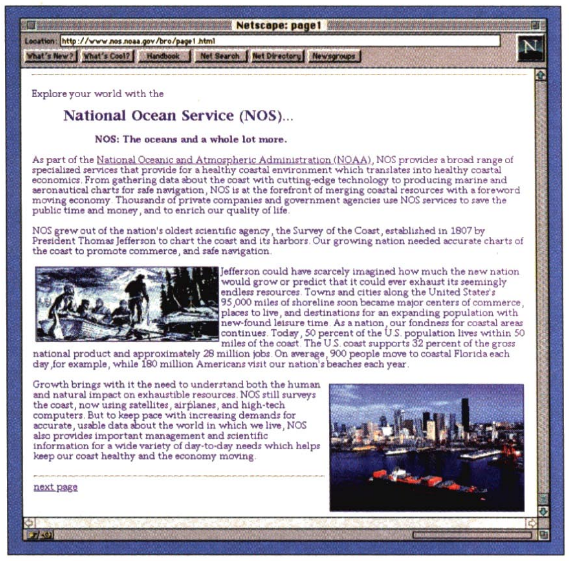
Many organizations get Web sites because nonexecutive employees, rather than the higher-ups, are drawn to the Internet's promise. For them, the desire to communicate, create, write, draw and produce proves almost irresistible. These employees become the impetus for creating the Web pages.

"There are always people who have the 'want-to' and the vision to get it done," said Steve Bendy, Meredith director of education. "They're going to do it whether they get paid for it or not."

Honeywell's Griscti said: "That is exactly what happened here. It's not a top-down directive; it's really almost a grass-roots effort."

Charters said, however, that these efforts — including those at his own agency — are often amateurish. "It's a bunch of professional people doing this above and beyond what they're already doing," he said.

Nevertheless, sites will continue to grow, he said. "There's no reason for them to level off." □



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National Ocean Service (NOS)...

NOS: The oceans and a whole lot more.

As part of the National Oceanic and Atmospheric Administration (NOAA), NOS provides a broad range of specialized services that provide for a healthy coastal environment which translates into healthy coastal economics. From gathering data about the coast with cutting-edge technology to producing marine and aeronautical charts for safe navigation, NOS is at the forefront of merging coastal resources with a foreword moving economy. Thousands of private companies and government agencies use NOS services to save the public time and money, and to enrich our quality of life.

NOS grew out of the nation's oldest scientific agency, the Survey of the Coast, established in 1807 by President Thomas Jefferson to chart the coast and its harbors. Our growing nation needed accurate charts of the coast to promote commerce, and safe navigation.

Jefferson could have scarcely imagined how much the new nation would grow or predict that it could ever exhaust its seemingly endless resources. Towns and cities along the United States's 95,000 miles of shoreline soon became major centers of commerce, places to live, and destinations for an expanding population with new-found leisure time. As a nation, our fondness for coastal areas continues. Today, 50 percent of the U.S. population lives within 50 miles of the coast. The U.S. coast supports 32 percent of the gross national product and approximately 28 million jobs. On average, 900 people move to coastal Florida each day ,for example, while 180 million Americans visit our nation's beaches each year.

Growth brings with it the need to understand both the human and natural impact on exhaustible resources. NOS still surveys the coast, now using satellites, airplanes, and high-tech computers. But to keep pace with increasing demands for accurate, usable data about the world in which we live, NOS also provides important management and scientific information for a wide variety of day-to-day needs which helps keep our coast healthy and the economy moving.

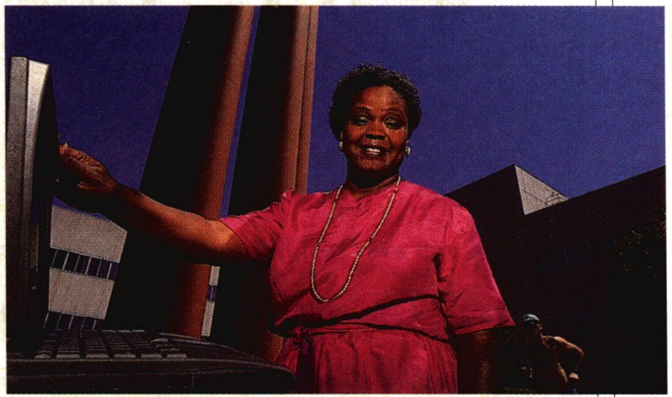
next page

The government, which created the Internet two decades ago, runs information-loaded sites like this for the U.S. National Ocean Service (No. 109 on the MacWEEK 200 list).

MACWEEK 200 SITE	LOCATION	MACS	NON-MAC PCS	WORK-STATIONS
156 National Institute of Environmental Health Sciences	Research Triangle Park, NC	528	530	21
157 City of Philadelphia	Philadelphia, PA	525	3,000	3,000
158 Allegheny University of Health	Philadelphia, PA	513	6,000	400
159 Dow Chemical Co. Inc.	Freeport, TX	512	2,500	420
160 SmithKline Beecham	King of Prussia, PA	510	2,400	1,000
161 Woods Hole Oceanographic Institution	Woods Hole, MA	505	800	250
162 Alcatel Telecom	Richardson, TX	500	1,500	120
163 Ameritech Services Inc.*	Chicago, IL	500	500	0
164 County of Santa Clara	San Jose, CA	500	1,750	75
165 King County, Department of Metro Services	Seattle, WA	500	3,000	50
166 Procter & Gamble Co.	Cape Giradeau, MO	500	225	5
167 American Academy of Computer Training & Technology	Rolling Meadows, IL	499	125	2
168 Markem Corp.	Keene, NH	499	42	20
169 Rockwell Corp., Rocketdyne Division	Canoga Park, CA	498	3,400	350
170 Random House Inc.	New York, NY	497	1,500	20
171 Fair, Isaac and Co. Inc.	San Rafael, CA	492	600	30
172 Herff Jones Inc.	Indianapolis, IN	489	510	0
173 Hearst Magazines, division of The Hearst Corp.	New York, NY	488	1,600	0
174 Gulfstream Aerospace Corp.	Savannah, GA	485	1,100	200
175 Calgary Herald	Calgary, AB	480	160	1
176 Paramount Pictures, a Viacom Co.	Los Angeles, C A	475	2,000	10
177 U S WEST MRG Inc.*	Phoenix, AZ	469	0	0
178 DDB Needham Worldwide Inc.*	New York, NY	465	35	0
179 U S WEST Advanced Technologies*	Boulder, CO	465	200	150
180 National Renewable Energy Laboratory	Golden, CO	464	400	20
181 Val-Pak Direct Marketing Systems Inc.	Largo, FL	463	50	20
182 U S WEST MRG INC.*	Minneapolis, MN	462	0	0
183 Association of American Universities	Washington, DC	458	0	0
184 Salk Institute for Biological Studies	La Jolla, CA	458	100	75
185 Messner, Vetere, Berger, McNamee, Schmettere Euro RSCG	New York, NY	457	10	3
186 GTE Laboratories Inc.	Waltham, Ma	455	225	350
187 Honeywell Inc., Military Avionics Division*	Minneapolis, MN	451	649	56
188 Delco Electronics Corp.	Kokomo, IN	450	3,000	600
189 SDRC Marketing Division of Structural Dynamics Research Group	Milford, OH	450	60	0
190 Target Therapeutics Inc.	Fremont, CA	450	20	15
191 Tracor Inc.	Austin, TX	450	1,500	500
192 Foote, Cone & Belding*	San Francisco, CA	435	6	0
193 Wyeth-Ayerst Research*	Pearl River, NY	435	2,000	12
194 Amoco Corp.	Houston, TX	430	7,000	1,500
195 Nortel Communications, division of Northern Telecom Inc.*	McLean, VA	425	15	4
196 Baptist Sunday School Board of the Southern Baptist Convention	Nashville, TN	425	800	0
197 G.D. Searle & Co.	Skokie, IL	423	500	20
198 Wyeth-Ayerst Research*	Monmouth Junction, NJ	422	300	30
199 U.S. Geological Survey, a Bureau of the Department of the Interior*	Reston, VA	421	3,000	300
200 AT&T Tridom	Marietta, GA	420	60	200

**Companies with multiple sites.*

The intranet boom strikes



JAMIE TANAKA

Belinda Robinson, supervisor of desktop support at SRI, says an intranet's benefits outweigh its liabilities.

Although less noticeable, intranets seem to be matching the phenomenal growth of the Internet and the Web. Intranets are private subsets of the Web built behind digital fire walls and generally used for internal communications. Much the same creativity and effort go into them as go into external Web sites.

At the Woods Hole Oceanographic Institution (No. 161), "all the access for documentation, financial-status information, human resources, business office — everything — is going on internal Web sites," said B.L. Owens, information systems associate.

SRI International (No. 70, http://www.sri.com) plans to use its intranet to keep staffers informed of the many changes as SRI moves from a centralized to a distributed computing environment.

"We understand [the intranet's] limitations, but we also understand its benefits. So we use it where it's applicable," said SRI's Belinda Robinson, supervisor of desktop support. Among the drawbacks are security issues. "You're open when you do this kind of thing," Robinson said. "You have to be very careful." The benefits overmatch the limitations, however, and include "easy distribution of software, information and training."

Such everyday applications lead some users to think that intranets are challenging the dominance of databases such as Lotus Notes. "There's no way an intranet is as functional as Lotus Notes," said Patrick Foster, LAN support coordinator for Turner Broadcasting System Inc. (No. 103). "But it's heading that way."

Judging the impact of intranets is difficult, if not impossible, just as it is with the Internet that spawned it. "None of us internally are going to know the benefits until way into the late '90s," Robinson said. With her company's project, it will take "a couple more years" to see the effectiveness, she said. "But I know we're going to buy interface tools for just about everything we do to interface with the Web." — By Jim Leeke

For years, creative professionals have relied on award-winning UMAX scanners to capture the high quality images they demand as an essential part of their creative solutions. Now, UMAX has come full circle by offering them the ultimate computers on which to realize their vision...

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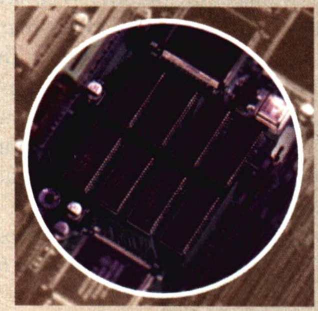
Introducing the SuperMac S900

Designed from the ground up specifically to meet the needs of the design professional. We've kept all the best things you like — the familiarity and ease-of-use of Mac OS and compatibility with all your favorite software — wrapped it all up with the raw power of a 604 150MHz PCI-based design and delivered it at a price that can't be beat. Many unique features of the new S900 have been designed to specifically eliminate performance bottlenecks that have long troubled the market.

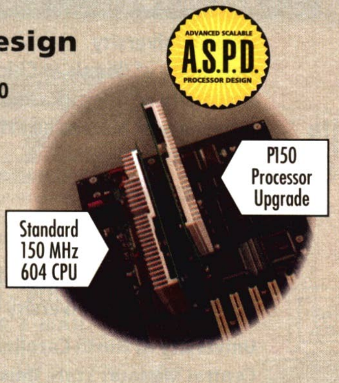


① Interleaved Memory

Every S900 comes standard with 16MB of interleaved memory on the motherboard for fast memory access and best system performance. Others require the purchase of additional DIMMs to implement memory interleaved.

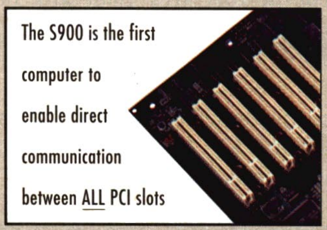
② Advanced Scalable Processor Design

UMAX's exclusive A.S.P.D. provides easy upgradeability to dual processors or for higher speed processors as they become available. This modular configuration costs less and is far more flexible, allowing programs such as Photoshop to increase its performance up to 80% with the addition of a second processor card.



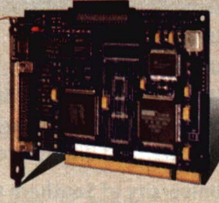
③ Exclusive PCI-to-PCI Bridge

Not only does the S900 have an amazing 6 PCI slots, it is also the first to enable burst communication between them. UMAX's exclusive PCI-to-PCI Bridge design enables direct communication between all PCI cards with the greatest performance, no matter which slots they're inserted in, also making it more expandable and easier to configure.



The S900 is the first computer to enable direct communication between ALL PCI slots

④ E100 I/O & Networking Card



To increase performance even further, UMAX offers the ultimate combination upgrade that gives you both Ultra-Wide SCSI and 100Base-T on one easy-to-install PCI card. The 100Base-T boosts data transfer over networks up to ten times the speed of standard 10Base-T connections. Ultra-Wide SCSI provides 16-bit wide data access at rates up to 40MB/sec. (4 times the speed of regular SCSI)

MODEL		Processor Type	CPU Speed	Hard Drive Capacity	PCI Slots	Onboard RAM	Level2 Cache	CD ROM Drive	Graphics Card	Drive Bays	PRICE*
① SuperMac S900L	Tower	604	150 MHz	2 Gbyte	6	16 MB	512 K	6.7x Speed	4MB VRAM	5	$ 4395

* Suggested Retail Price

UPGRADE OPTIONS		PRICE*
② SuperMac E100	Extended Performance Ultra-Wide SCSI / 100Base-T	$ 495
③ SuperMac P150	604-150 ASPD Processor Upgrade	$ 995

* Suggested Retail Price

BUNDLED SOFTWARE ▶ Mac OS

- ▶ C&G Conflict Catcher 3.0™
- FWB Incorporated CD-ROM & HDToolKit™ ◀
- ▶ ASANTE Net Doubler™
- MICROMAT COMPUTER SYSTEMS TechTool™ Diagnostic ◀

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Education 50: Higher-ed Macs hold their own

MAC COMPATIBLES

A total of 490 Mac compatibles are installed at 20 (40%) of this year's MacWEEK Education 50 sites.

Base: All Education 50 sites.

The 50 education sites surveyed this year generally mirror the MacWEEK 200, with some notable exceptions.

Macs are holding their own against Intel-standard PCs better in the education sector. Here 41 percent of the installed base are Macs (compared with 33 percent in the MacWEEK 200).

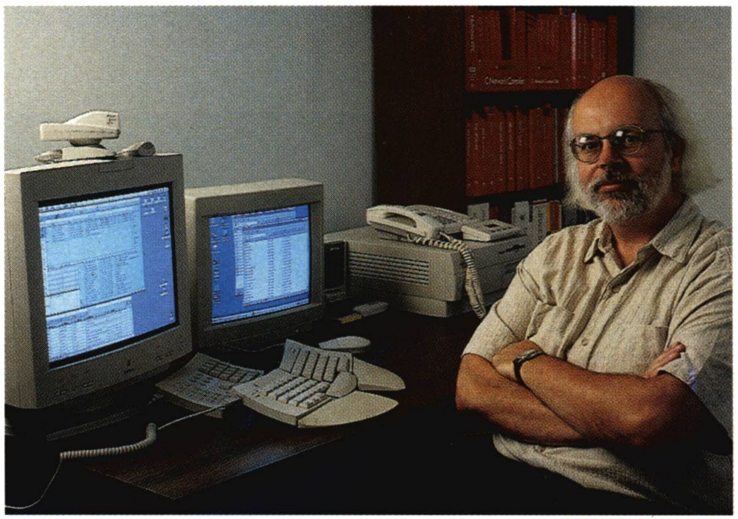
Mac compatibles are faring better in the education sector as well. More sites have them installed — 40 percent, compared with 20 percent of MacWEEK 200 sites. This makes an average of 10 compatibles per site but still does not represent volume buying of compatibles.

Intranets are in solid use at the Education 50: Ninety-two percent of universities reported having intranet systems installed, compared with 82 percent in the MacWEEK 200.

Only 50 percent of the education sites are connected over dial-up or WAN lines, unlike the MacWEEK 200 where virtually every site was connected to outside computers this way. This fits with the campus computing environment, however, where intracampus computer communications are probably more important than extra-campus communications.

The Education 50 are more involved with leading-edge applications, namely multimedia and Internet content development. Forty-nine percent of the education sites reported more than one-quarter of their Macs running multimedia applications and 48 percent running Internet content development applications. Together with graphics and scientific and technical applications, these were far and away the most popular applications. Even more so than in the MacWEEK 200 group, these applications have rapidly gained prominence in the Mac computing environment.

As to future spending on applications, Internet content development leads all other applications: Fifty-seven percent of the sites said more resources would be spent in this area than any other. And like the MacWEEK 200, the education sector plans to continue purchasing Macs in the coming year, with 59 percent planning to spend between $200,000 and $2.5 million on Mac hardware and software in the next year. □



ROB MUSTARD/BLACK STAR

Phil Reese, director of direct services at the University of Southern California (No. 6 on the Education 50 list), said that about 40 percent of students and faculty have put up Web pages.

Business apps still on top; Web is big man on campus

By Mitzi Waltz

Like most MacWEEK 200 sites, developing Web pages is becoming business as usual at the Education 50 sites. However, word processing and spreadsheets are the most popular applications on campus, proving indeed that the Mac is a business-productivity tool.

Currently, 48 percent or more of all the institutions on this list are developing Internet content on at least one-quarter of their Macs. And at 6 percent of the sites, 90 percent of the Macs are being used for Internet content development.

With business-productivity applications, the trend seen in previous years toward suites — particularly Microsoft Office — continues, although some sites are experimenting with client-server setups that have the potential to save money. "We have large Novell servers that serve Novell clients as well as Mac clients," said Phil Reese, director of direct services at the University of Southern California in Los Angeles (No. 6 on the MacWEEK Education 50 list).

Web everything

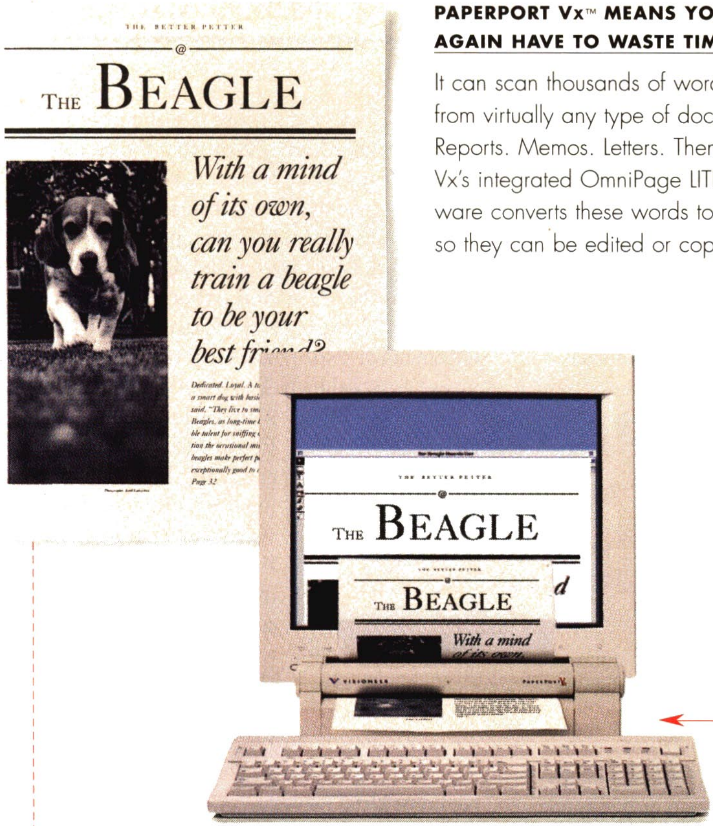
Internet applications, such as interactive course registration and distance learning programs, are in high demand.

"UT is now one of the premier Web sites in the country," said Morgan Watkins, manager of microcomputer technologies at the University of Texas (No. 1). "We have moved in the direction of taking everything that can be put on the Web, like registration, bookstore information, reading lists and actual classroom material, and doing so."

Applications of choice at UT mirror those

See Education 50, Page 64

	EDUCATION 50 SITE	LOCATION	MACS	NON-MAC PCS	WORK-STATIONS
1	**University of Texas**	Austin, TX	13,920	6,000	500
2	**University of Michigan**	Ann Arbor, MI	11,600	9,000	2,500
3	**University of Illinois at Urbana-Champaign**	Urbana, IL	11,089	11,082	0
4	**University of North Carolina at Chapel Hill**	Chapel Hill, NC	9,050	14,000	1,500
5	**University of Washington**	Seattle, WA	7,900	8,000	8,000
6	**University of Southern California**	Los Angeles, CA	7,770	8,000	2,000
7	**University of California at Berkeley**	Berkeley, CA	7,480	15,406	1,500
8	**Stanford University**	Stanford, CA	6,644	5,500	550
9	**University of Chicago**	Chicago, IL	6,000	6,000	2,000
10	**University of Wisconsin - Madison**	Madison, WI	5,666	11,600	1,200
11	**University of Maryland - College Park**	College Park, MD	5,500	10,000	1,200
12	**University of Utah**	Salt Lake City, UT	5,110	5,000	1,000
13	**University of Colorado - Boulder**	Boulder, CO	4,915	3,931	783
14	**Carnegie Mellon University**	Pittsburgh, PA	4,500	2,000	2,000
15	**Princeton University**	Princeton, NJ	3,505	3,100	900
16	**University of Arizona**	Tucson, AZ	3,500	15,000	1,000
17	**Dartmouth College**	Hanover, NH	3,370	550	300
18	**Boston College**	Chestnut Hill, MA	3,162	625	110
19	**Case Western Reserve University**	Cleveland, OH	2,821	5,900	400
20	**Bowling Green State University**	Bowling Green, OH	2,815	1,700	80
21	**Indiana University - Bloomington**	Bloomington, IN	2,807	6,350	120
22	**Drake University**	Des Moines, IA	2,784	10	11
23	**Tufts University**	Medford, MA	2,717	3,600	120
24	**San Francisco State University**	San Francisco, CA	2,707	4,500	100
25	**University of South Carolina**	Columbia, SC	2,700	6,000	500
26	**Drexel University**	Philadelphia, PA	2,640	107	40
27	**University of Illinois at Chicago**	Chicago, IL	2,636	7,200	210
28	**University of Nebraska - Lincoln**	Lincoln, NB	2,462	3,100	125
29	**University of Massachusetts - Lowell**	Lowell, MA	2,420	1,300	300
30	**University of Virginia**	Charlottesville, VA	2,342	6,718	345
31	**Baylor University**	Waco, TX	2,209	350	25
32	**Clemson University**	Clemson, SC	2,200	3,900	600
33	**Wayne State University**	Detroit, MI	2,199	2,465	56
34	**University of British Columbia**	Vancouver, BC	2,010	4,000	1,000
35	**California State University - Chico**	Chico, CA	1,751	1,366	212
36	**University of North Carolina at Charlotte**	Charlotte, NC	1,685	2,400	500
37	**Central Missouri State University**	Warrensburg, MO	1,559	2,100	1
38	**Northern Arizona University**	Flagstaff, AZ	1,500	5,000	0
39	**University of Mississippi**	University, MS	1,488	2,900	50
40	**West Virginia University**	Morgantown, WV	1,465	4,000	150
41	**Eastern Washington University**	Cheney, WA	1,418	1,000	75
42	**Stephen F. Austin State University**	Nacogdoches, TX	1,374	2,700	50
43	**De Anza College**	Cupertino, CA	1,359	392	75
44	**Illinois State University**	Normal, IL	1,314	4,400	13
45	**University of New Mexico - Albuquerque**	Albuquerque, NM	1,310	8,000	250
46	**Foothill College**	Los Altos Hills, CA	1,250	43	0
47	**Cornell University - Medical College**	New York, NY	1,184	700	200
48	**Wellesley College**	Wellesley, MA	1,152	403	0
49	**Temple University**	Philadelphia, PA	1,104	2,500	45
50	**Oberlin College**	Oberlin, OH	1,070	200	20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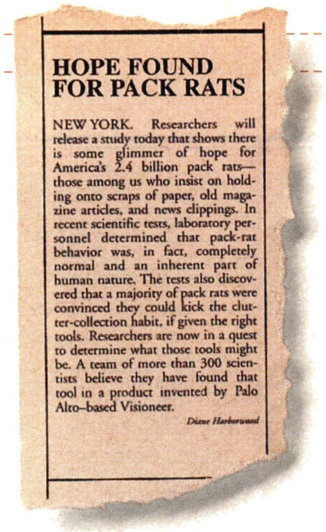

HOPE FOUND FOR PACK RATS

NEW YORK. Researchers will release a study today that shows there is some glimmer of hope for America's 2.4 billion pack rats—those among us who insist on holding onto scraps of paper, old magazine articles, and news clippings. In recent scientific tests, laboratory personnel determined that pack-rat behavior was, in fact, completely normal and an inherent part of human nature. The tests also discovered that a majority of pack rats were convinced they could kick the clutter-collection habit, if given the right tools. Researchers are now in a quest to determine what those tools might be. A team of more than 300 scientists believe they have found that tool in a product invented by Palo Alto–based Visioneer.

Diane Harborwood

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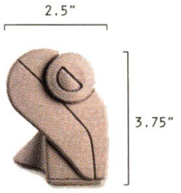

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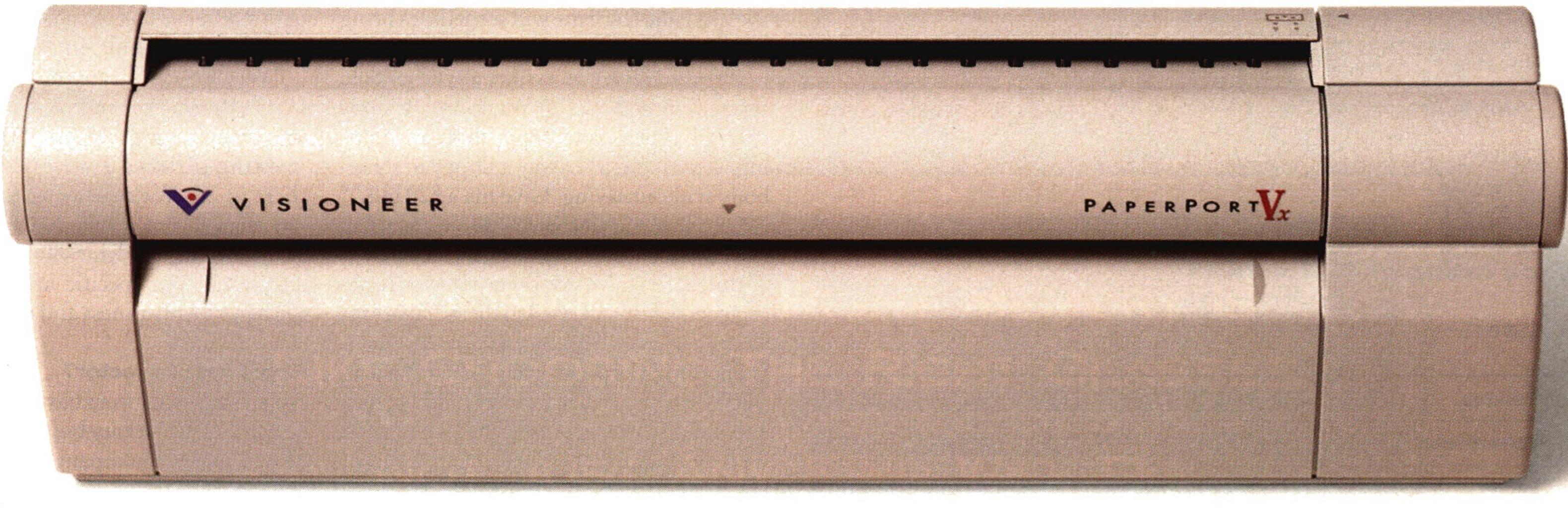
*Except make coffee.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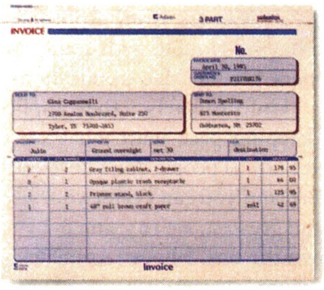
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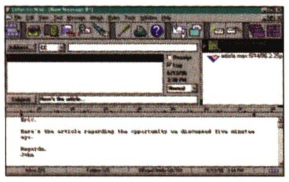

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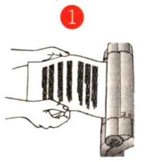

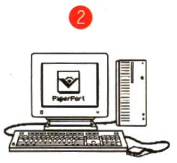
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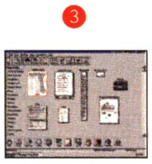

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Education

From Page 62

at other sites: Netscape Communications Corp.'s Navigator browser and Web-server software; Adobe Systems Inc.'s PageMill, and a variety of HTML conversion programs. "Even ClarisWorks' simplistic conversions can help, and many people are using things like [Bare Bones Software Inc.'s] BBEdit with filters," Watkins said. "People are also designing original artwork for their pages because they're more concerned about graphics. Graphics converters are important, including some of the shareware products."

Web sites and servers have spread far beyond the computer department. About 40 percent of the 10,000 students and faculty at USC have put up Web pages, for example. There's enough work to keep a five-person Internet Publishing Center at USC busy full time with contract projects. It's not just simple HTML, either. "We're very interested in Java," Reese said. "Several of our developers are extremely skilled in it, and we're just waiting for the critical mass to develop."

Microcomputer and workstation breakdown

TYPE	BREAKDOWN
Intel-standard PCs	51%
Macs	41%
Workstations	8%

Base: All Education 50 sites.

From Mac to Web?

But the Internet is not all good news for the Mac. At a few universities — enough that perhaps Apple should be concerned — Macs are losing ground, and in some cases the culprit appears to be the movement of applications and activity online.

"Two years ago I would have said that the Mac was the preferred platform for online access, but our libraries are on the verge of changing all of the public-access machines to Windows," said Jane Adams, network administrator for the Stanford University (No. 8) library. "Once you're on the Web, it doesn't really matter if it's a Mac or a PC, does it? It all looks the same — and that has [us] looking at price points."

Chris Lundin, director of customer assistance for Stanford's Information Technology Systems and Services department, said, "Stanford is still about 50-50 Mac and PC," but the Web environment is letting it develop directly for the Web and not for one platform or the other. "For example, Stanford did an Oxford English Dictionary browser, which was a Mac application — that's on the Web now," he said. So are custom applications for booking travel, making bookstore orders and looking up the status of purchase requisitions.

INTRANETS

92% of this year's MacWEEK Education 50 sites have intranets installed.

Base: All Education 50 sites.

Hardware advances

Power Macs are gradually replacing older workstations, although no universities have done wholesale swapouts. One hardware area where change is evident is the adoption of removable hard drive units such as Iomega Corp.'s Zip drive, both on Macs in offices and in big student and faculty labs.

"At the Faculty Development Center, . . . machines are equipped with a Zip drive," said Mark McNair, senior computer specialist at the University of Washington in Seattle (No. 5). "In the art department, where programs like [Adobe] Photoshop are used, the students will sometimes bring in whole projects on a Zip cartridge."

Floppies won't be extinct anytime soon, though, noted UT's Watkins. "Floppy drives are cheap, and floppy disks are nothing — you can give away a floppy to somebody without saying 'Give me a $20 bill,' " he said. Color printers are also turning up beside more workstations and in labs.

But clones have not been universally accepted. "We're still open to them," Watkins said. "We had seriously considered Power Computing Corp., which is local, for a project this year, but they were still a little green and not ready for a project the size of what we were thinking of." Clone manufacturers, he said "will have to establish a track record, be aggressive about pricing and make a good support system available to customers."

PowerBooks are a more popular alternative to desktop Macs. "Now that the laptops are becoming more fully functional, people are opting to buy [them] instead of desktop machines," said Andy Palms, product manager for networking at the University of Michigan (No. 2) in Ann Arbor.

At the University of North Carolina at Chapel Hill (No. 4), Director of Client Services Linwood Futrelle recently sent Apple a big order for its new Pentium-based PC cards for Power Macs in the college's software instruction labs. Futrelle started experimenting with PC-capable Macs last year with positive results. "The Power Macs with Intel cards are working wonderfully," he said.

Networking news

If anyone hoped 1996 would be the year of widespread Asynchronous Transfer Mode (ATM) deployment, education sites didn't fulfill those hopes. Outside of pilot projects, the most popular change has been a move from routed to switched networks, with most sites hovering close to 100-Mbps technologies. At UNC, "we're still on a copper backbone, although we just got 40 buildings up on 100-bit switched Ethernet over the past few weeks," Futrelle said. "We're still working on ATM."

"We are timid about ATM," echoed USC's Reese. "We're looking more toward the gigabit technology, which our networking person's [sources] say should be there in '97. We're moving from a routed environment to a switched environment, [and] to a higher bandwidth — 100-Mbps and beyond in specific areas," including the School of Business and multi-user labs.

Apple woes a factor?

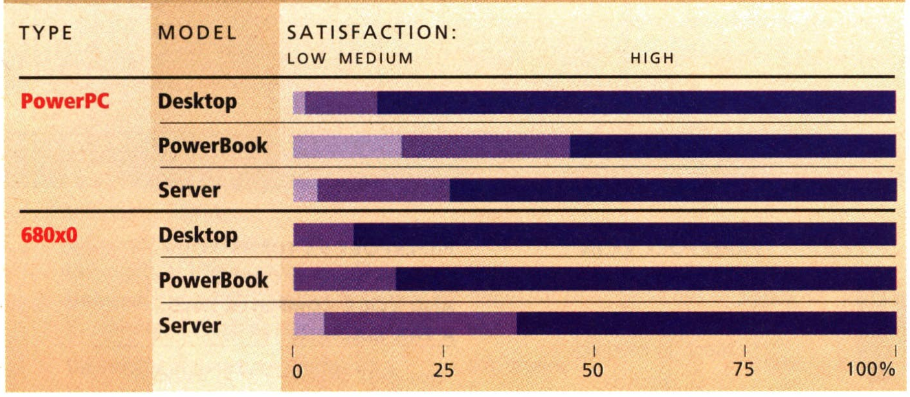
Apple's financial woes have not escaped notice among university buyers, who are concerned that the company's well-publicized troubles could have repercussions on either the Mac's viability or on the availability of low-cost computers from Apple. Already they're having trouble with some software developers giving Mac applications short shrift. "Unfortunately, the applications aren't keeping pace with what we need," Futrelle said. "If people don't develop the applications and you can't offer your users the latest and greatest, we're going to have trouble down the line. I hope [Apple] gets with the program." □

Total Macs installed at Education 50 sites

TYPE	MODEL	TOTAL	AVERAGE # AT SITE	% SITES WITH ANY
PowerPC	Desktop	59,042	1,181	100%
	PowerBook	7,559	151	99%
	Server	1,484	30	98%
680x0	Desktop	102,464	2,049	100%
	PowerBook	13,916	278	92%
	Server	2,098	42	80%

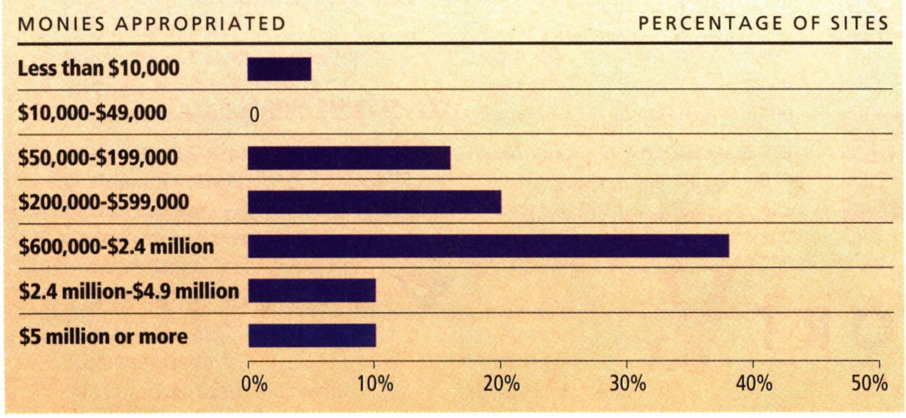
Base: All Education 50 sites.

Satisfaction rating of Mac models



Base: All Education 50 sites.

Budget plans for Mac hardware and software in the next year



Base: All Education 50 sites; 2% did not know or did not respond.

Percentage of sites with 25% or more Macs* running these applications

APPLICATION	% OF SITES
Business productivity	99%
Graphics	49%
Multimedia	49%
Internet content development	48%
Science/technical	38%
Publishing	27%
Custom applications	11%
CAD	9%
Internet site management	6%
Digital video	2%

*Base: All Education 50 sites. *Includes compatibles.*

Percentage of sites with 90% or more Macs* running these applications

APPLICATION	% OF SITES
Business productivity	76%
Internet content development	6%
Multimedia	4%
Graphics	2%

*Base: All Education 50 sites. *Includes compatibles.*

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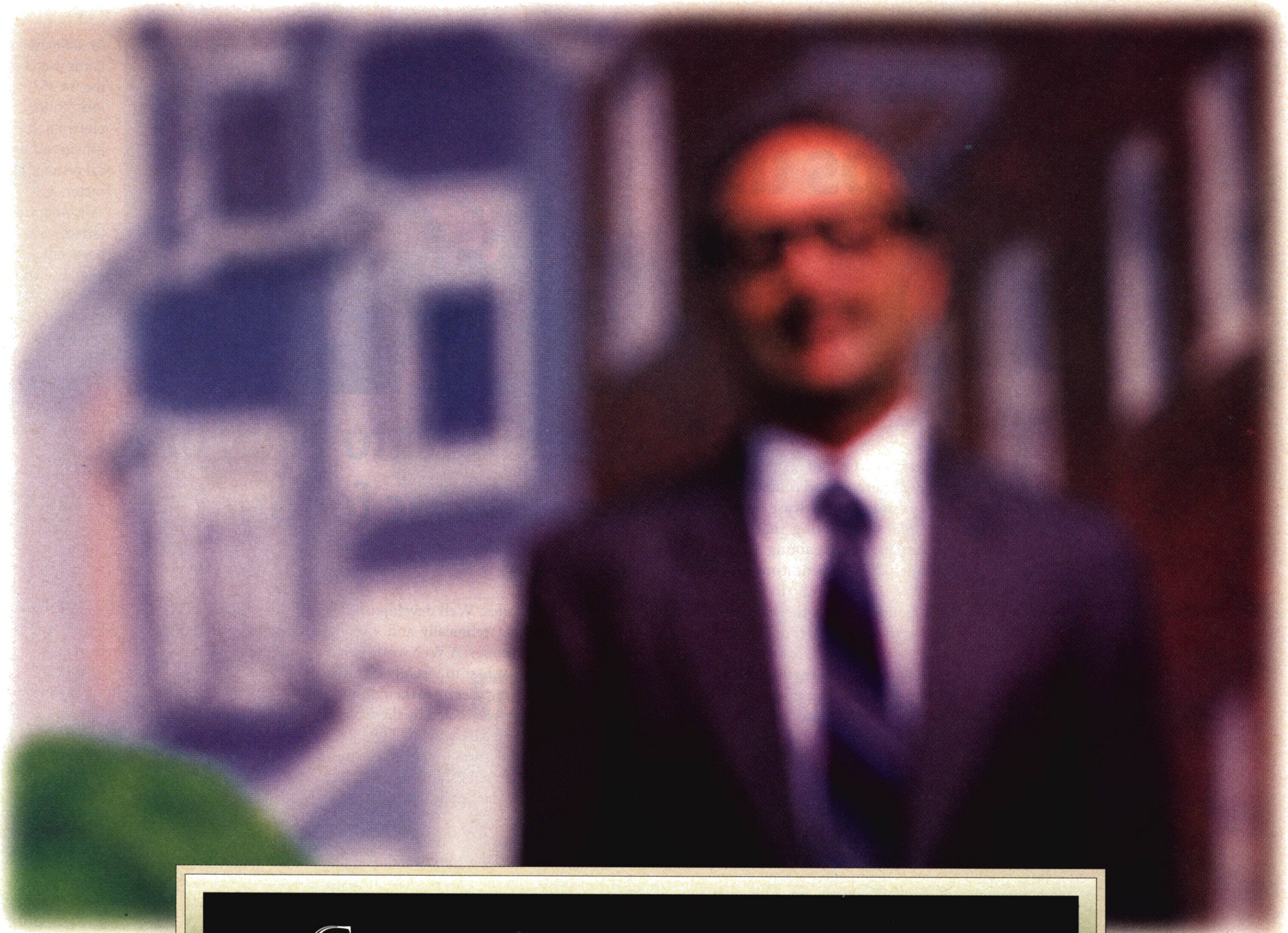

Choosing The Right Memory Is Like Choosing The Right Glasses.

Not Just Any Kind Will Do.

People who say all memory is the same aren't seeing things as clearly as they should be. The reality is that memory isn't just memory.

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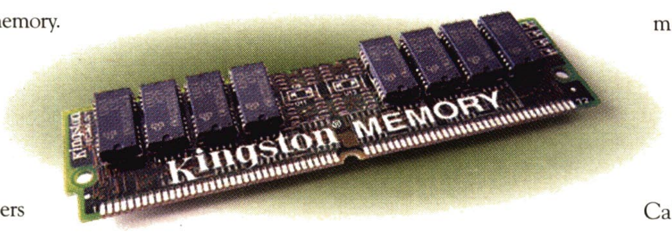

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GA 25 identifies graphics apps use

This year the MacWEEK editors decided to expand the MacWEEK 200 to reflect the large segment of our readers and other Mac users involved in the graphic arts. We defined graphic arts as companies producing text with images that were four-color, static or moving. Thus, included in this list are magazine and book publishers, newspapers, advertising agencies, television production companies, and movie production companies. Businesses such as pre-press and video production houses were capable of qualifying, but the ones we contacted did not account for the volume of Macs. Printing companies also meet our criteria. Those that were contacted declined to participate.

INTRANETS

66% of this year's MacWEEK GA 25 sites have intranets installed.

Base: All GA 25 sites.

The GA 25 intensively use graphics and publishing applications on their Macs. Sixty-four percent of these sites had graphics applications running on at least one-quarter of their Macs, while 52 percent had publishing applications. Of interest, as well, is that nearly 25 percent had multimedia applications running on a least one-quarter of their Macs, indicating that this leading-edge application is gaining a foothold.

Anticipated expenditures in the next year were fairly evenly divided: 20 percent of respondents said the areas that would receive the greatest resources were publishing, multimedia, Internet content development and, somewhat surprisingly, custom-developed applications such as ad tracking and image archival systems.

Virtually all these sites are connected to others within their companies via dial-up or WAN lines. The average number of other sites they're connected to is three. Almost 25 percent of the GA 25 have their own intranets as well, indicating that this graphic arts environment now features a good deal of connectivity and Internet technology. □

Microcomputer and workstation breakdown

TYPE	BREAKDOWN
Intel-standard PCs	**54%**
Macs	**45%**
Workstations	**1%**

Base: All GA 25 sites.

	GA 25 SITE	LOCATION	MACS	NON-MAC PCS	WORK-STATIONS
1	**Time Inc.**	New York, NY	2,375	2,000	50
2	**Tristar Pictures**	Culver City, CA	1,967	2,000	0
3	**Hallmark Cards Inc.**	Kansas City, MO	1,735	4,000	20
4	**Home Box Office, Subsidiary of Time Warner Inc.**	New York, NY	1,261	200	17
5	**WGBH Educational Foundation**	Boston, MA	1,175	60	4
6	**BBDO, N.Y.**	New York, NY	928	6	3
7	**Houghton Mifflin Co.**	Boston, MA	922	1,284	37
8	**F C B/ L B P**	New York, NY	853	80	4
9	**Turner Broadcasting System Inc.**	Atlanta, GA	833	700	0
10	**Condé Nast Publications Inc.**	New York, NY	826	1,000	30
11	**DDB Needham Worldwide Inc.***	Dallas, TX	726	12	0
12	**DDB Needham Worldwide Inc.***	Chicago, IL	683	12	4
13	**New York Times Co.**	New York, NY	676	2,000	75
14	**Foote, Cone & Belding***	Chicago, IL	636	185	0
15	**Leo Burnett Co. Inc. and Capps Studios L.P.**	Chicago, IL	614	1,801	8
16	**Fox Broadcasting Co.**	Los Angles, CA	604	1,600	0
17	**Los Angeles Times, a Times Mirror newspaper**	Los Angeles, CA	600	2,000	24
18	**Meredith Corp.**	Des Moines, IA	554	728	11
19	**Random House Inc.**	New York, NY	497	1,500	20
20	**Hearst Magazines, division of The Hearst Corp.**	New York, NY	488	1,600	0
21	**Calgary Herald**	Calgary, AB	480	160	1
22	**Paramount Pictures, a Viacom Co.**	Los Angeles, CA	475	2,000	10
23	**DDB Needham Worldwide Inc.***	New York, NY	465	35	0
24	**Messner, Vetere, Berger, McNamee, Schmettere Euro RSCG**	New York, NY	457	10	3
25	**Foote, Cone & Belding***	San Francisco, CA	435	6	0

**Companies with multiple sites.*

CHUCK KNEYSE/BLACK STAR

At Hallmark Cards (No. 3 on the GA 25 list), Jack Smith, electronic publishing technical systems director, and Sally Anderson, lettering department manager, use an all-Mac operation to create the company's well-known greeting cards.

Sites jump to Web; others herald Mac for print success

By Anita Malnig

At most GA 25 sites, Web development is the darling of the technically and visually skilled. And no wonder. A Web world ruled by text is boring at best to visually creative people ready to bring sites up to their graphic potential. But don't be fooled by the rush to jump onto the Web bandwagon. These GA 25 sites — in many cases household names — have built their publishing successes on bread-and-butter Mac applications.

It's history now

At Hallmark Cards Inc. (No. 3 on the GA 25 list and No. 33 on the MacWEEK 200 list), in-house creative operations, from idea generation to film production, is Mac-driven.

"In 1985, I went to Seybold in Santa Monica," said Jack Smith, Hallmark electronic publishing technical systems director, "and in a break-out room met these two guys, one who was Paul Brainerd, with a 512K Mac, Aldus PageMaker and a LaserWriter. I started messing around and had a vision. If this was in color, you'd have all you have with a Scitex."

A vision, indeed, since even now some people challenge the thinking that the Mac competes with a Scitex machine. Nevertheless, with support from upper management, Smith managed to push the Macs along; worked with one of the first Barneyscan scanners (and its software, which was the original version of Photoshop); and even wrote his own color-separation programs. Hallmark's lettering department designed original fonts in Altsys Fontographer, which it continues to do today.

We've all looked to Hallmark cards for conveying sentiments. For the company, getting that feeling across is, well, its hallmark. "We need fonts that display more warmth, so we design our own," said Sally Anderson, lettering department manager. "We go for fonts based on actual handwriting. We steer clear of romans because they're so prevalent in the commercial world." But Anderson acknowledged that they use the entire font library from Adobe Systems Inc. as well.

At Time Inc. (No. 1 on the GA 25 and No. 17 on the MacWEEK 200), editorial departments a year ago bid adieu to the last of the Atex machines. This was the classic story of art department Macs moving into pre-press and then editorial.

Eric Mischel, editorial systems manager at People magazine, said one recalcitrant editor remains who still longs for his XyWrite and Wordstar software. But Quark Publishing System from Quark Inc. now dominates People as well as all the other Time publications except Fortune, which uses P.INK.

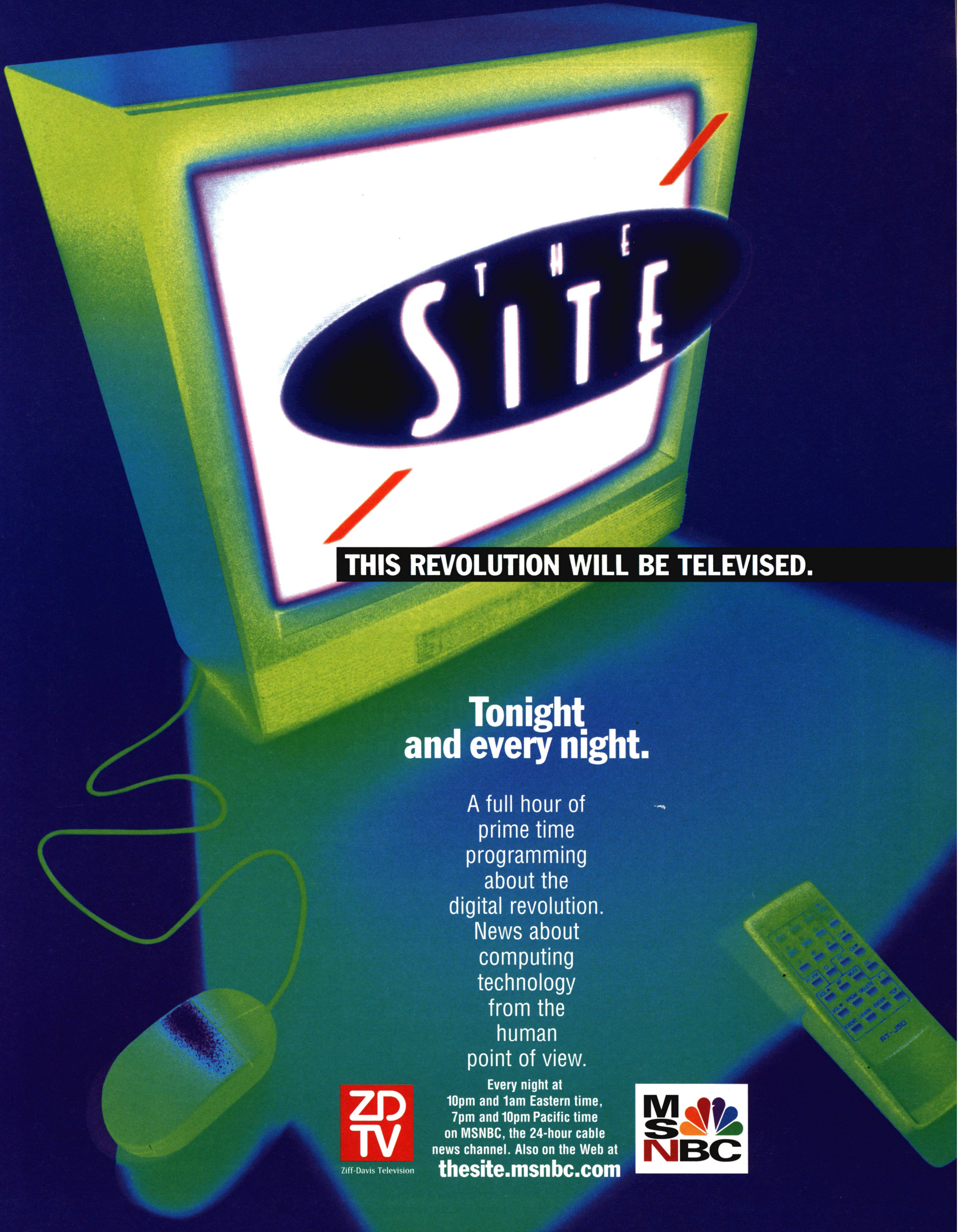
At Boston public TV station WGBH Educational Foundation (No. 5 on the GA 25 and No. 62 on the MacWEEK 200), the design group, under the direction of Chris Pullman, vice president for design, decided in the mid-'80s to replace Digital Equipment

See GA 25, Page 68

Total Macs installed at GA 25 sites

TYPE	MODEL	TOTAL	AVERAGE # AT SITE	% SITES WITH ANY
PowerPC	**Desktop**	7,961	318	100%
	PowerBook	806	32	75%
	Server	159	6	75%
680x0	**Desktop**	9,119	365	100%
	PowerBook	2,369	95	96%
	Server	148	6	64%

Base: All GA 25 sites.



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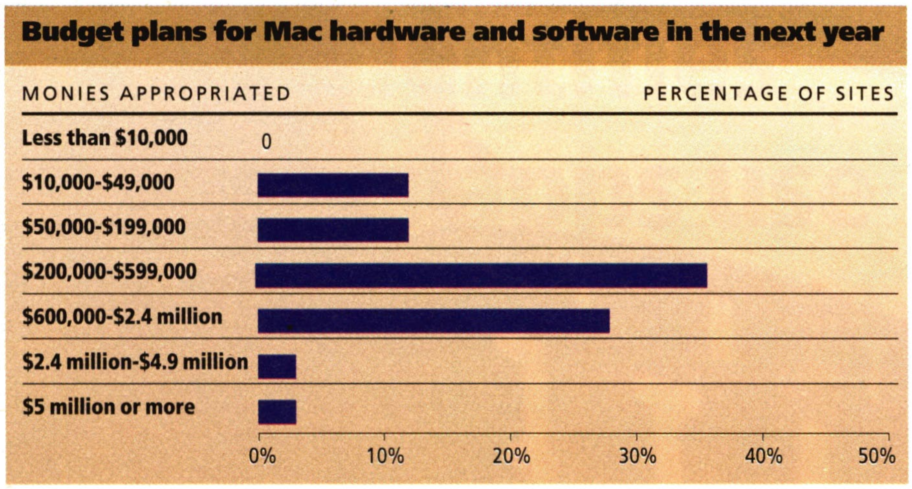

Base: All GA 25 sites; 4% did not know or did not respond.

GA 25

From Page 66

Corp. systems with Macs. "By the end of '89 the whole place was loaded with Macs, and it has been that way ever since," Pullman said.

Print is in business

The majority of Mac work done at these companies is still print, even the TV sites. QuarkXPress, Adobe Photoshop and Illustrator, and Macromedia FreeHand are the tools of choice at nearly every site.

WGBH, in its editorial outreach division alone, distributes 2.6 million print pieces, almost all of which are produced on Power Macs. WGBH's print designers also do video design. Pullman said that video design includes titles, credits and infographics. "For instance," he said, "for the past four years our designers did a lot of Macromedia Director animation for the popular children's show 'Where in the World is Carmen Sandiego?' "

Ad agency BBDO, N.Y. (No. 6 on the GA 25 and No. 87 on the MacWEEK 200), relies heavily on Macs, which is fitting since its Los Angeles office handles Apple's account.

Percentage of sites with 25% or more Macs* running these applications

APPLICATION	% OF SITES
Business productivity	92%
Graphics	64%
Publishing	52%
Multimedia	24%
Internet content development	12%
Digital video	4%

*Base: All GA 25 sites. *Includes compatibles.*

Percentage of sites with 90% or more Macs* running these applications

APPLICATION	% OF SITES
Business productivity	68%
Publishing	36%
Graphics	12%
Digital video	4%
Multimedia	4%

*Base: All GA 25 sites. *Includes compatibles.*

"The biggest advantage of Macs is still the ease of cross-platform communications and ease of networking," said New York-based Terry D'Attore, senior vice president and director of information systems at BBDO. The print work includes roughs through finished layouts, including photos and artwork. They scan photos in-house using low- and high-end scanners. "We have no Scitex on site," he said. However, when needed, he will go to an outside vendor for Scitex scans and retouching.

As is often the case with advertising agencies, BBDO's art directors can work in whatever medium they choose and go as far as they want with it. Then someone in either print production or a Mac operations group will finish the job on the Mac.

"The print production people are traditional print people who knew type and layout and adapted and learned the technology," D'Attore said. "They were real craftspeople and artists."

Chicago ad agency Leo Burnett Co. Inc. (No. 15 on the GA 25 and No. 137 on the MacWEEK 200) completely revamped its creative department in the past two years, said Mark Johnson, technology planner. Nearly 200 "creatives" (ad agency lingo for art directors) were equipped primarily with Power Mac 7600s with 40 Mbytes of RAM, while about 150 copywriters now work with PowerBooks. "But we don't want [art directors] to do final production," he said. "They get the concept out quickly. Creatives are idea people."

And at Burnett, getting it into the studio is easy because of its limited partnership with Capps Studios L.P., Burnett's in-house production shop. "It's symbiotic," Johnson said. "[Capps is] advanced technologically. The majority of [Capps'] work is helping creatives work with Illustrator and Photoshop."

Whither pre-press?

In-house or not is the question. GA 25 sites run the gamut. For example, Hallmark does its own film generation on Agfa imagesetters. Home Box Office, Subsidiary of Time Warner Inc. (No. 4 on the GA 25 and No. 52 on the MacWEEK 200), combines in-house operations with using outside vendors. "We produce black-and-white film in-house," said Gail Drucker, director of promotion and editorial operations. "But we send out for high-res scans on Scitex equipment and for four-color film."

Then there's BBDO, which has all its film done out of house. "That's the cutoff point," D'Attore said. "We don't have [an imagesetter] in-house. It's just not the work flow we wanted within the agency."

Behemoth Time has a complex, sophisticated operation within nearly all its publications that involves sending Mac files to a Scitex system for film output. But Frank Scott, director of pre-press operations, said he sees some movement over time away from the system for the weeklies. "We're looking at the Genesis multiprocessor machine" from DayStar Digital Inc., he said. "We feel that [Genesis] running Photoshop can provide the same performance as a Scitex Blaze, although the Blaze is a good tool. But we also have a digital ad initiative and will be equipping ad production with Macs to receive and process digital ads" (see 06.17.96, Page 14).

Moving right along with video

Avid Technology Inc. has made its mark at WGBH, which has 16 Media Composer systems. About half of its offline editing suites are Avids — the other half are analog systems. The Avids generate edit-decision lists, then the project moves to a traditional online suite, said Dave McCarn, chief technologist.

Some PBS shows are put together in a systematic way. With "Nova," for instance, all interview footage goes through the Mac system and all animation, charts, graphs and titling are Mac-created.

HBO has one of the best digital studios around, sporting Harry and Henry high-end digital video machines from Quantel Inc., according to Joe Prieboy, manager of electronic publishing technology at HBO. But for certain projects, such as internal prototyping of programming and presentations, he said, "we're starting to bring in Adobe After Effects and Premiere. We're waiting till Macworld Expo to see the PCI solutions from [Data Translation Inc.] and others." But a big project that Prieboy has set his eye on is video on the Internet.

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Gillette
The Best a Man Can Get

BBDO, N.Y. (No. 6 on the GA 25 list) created the split screen for this Gillette ad in Photoshop then moved it into QuarkXPress. Final retouching was done out of house.

Get that Web page up there

Prieboy said he thinks the key to "take what we're doing on the Web and turn it into an entertainment medium" will be cable modems, which are high-speed modems that transmit digital data from the Internet and elsewhere through cable TV connections.

Even among this relatively small GA 25 group, Internet content development ranks high on the investment lists for the coming year. In October, Time will have had its Pathfinder Web site (http://pathfinder.com) running for two years. In the works now is a Time intranet, which the company declined to discuss. The individual magazines have already set up intranets for each publication's use, primarily for editorial research.

"We have T1 links running from Mac servers with [Quarterdeck Corp.'s] WebStar," said Jeffrey Fulton, editorial network manager at Fortune. "We try to find sites that will give our writers starting points. Obviously, financial information is important."

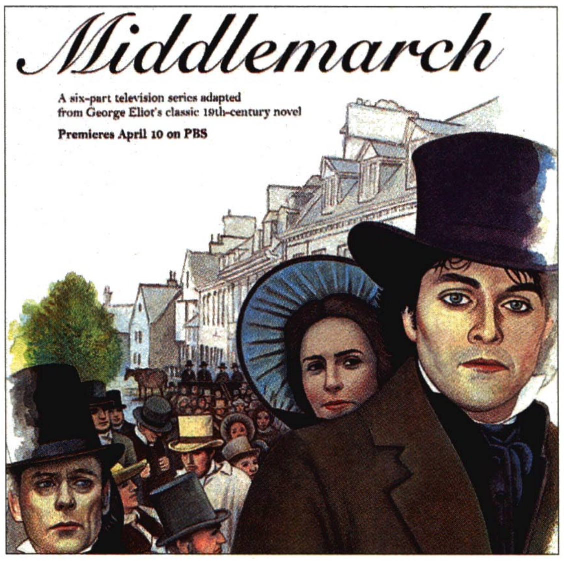
Still creative after all these years?

"It's easier to measure productivity than creativity," said BBDO's D'Attore. And by all accounts, the Mac has been a productivity tool par excellence. Scott Smith, associate creative director at Leo Burnett, said, "One huge advantage is the efficiency in executing comps." But whether it has increased (or decreased) creativity — or has had no effect — is still anyone's guess.

Yet, some are guessing.

" 'Where's the idea?' is what I ask," Smith said. "Some people will just jump onto the computer and do more techniques, more [MetaTools Inc.'s] Kai's Power Tools. But they do that without having an idea. On the other hand, if you scan your own stuff, you just may do something by accident."

Accident or no, the Mac's niche as a creative tool is a solid one. With more than half of the GA 25 sites planning to spend $200,000 to $2.4 million in the next year, Macs will continue to create and produce. □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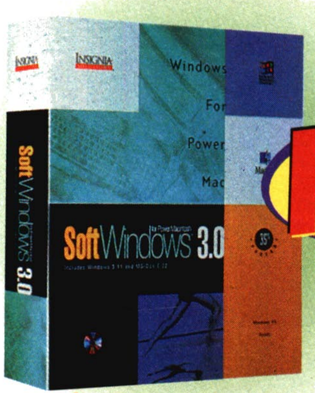

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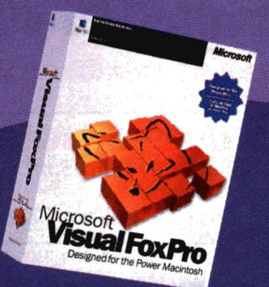

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REVIEWS

FAST, FASTER

DayStar Digital Inc. has a list of multiprocessor-ready apps at http://www.daystar.com/Superfast.Apps/Aps.html.

PowerBase series makes good use of low-cost 603e

By Henry Norr

To judge by Apple's current product line, the PowerPC 603 family appears to be intended for the home and school markets. Yes, the 603e processor is also used in the RISC PowerBooks, but their underwhelming performance tends only to reinforce the perception that business desktops require a more muscular processor.

For general office use, the new Power Computing line delivers more for less.

The same goes for Apple's new Alchemy architecture: So far the company offers it only in systems for education (Power Mac 5400) and the consumer channel (Performa 6400, see review, Page 75) and hasn't even hinted at using it in products aimed at the business market.

But Power Computing Corp.'s new PowerBase series, incorporating 603e processors into Alchemy-derived logic boards, challenges the assumption that these technologies aren't fit for the office. Our tests of pre-release models suggest that, in terms of price, performance, expandability and upgradability, the PowerBase represents a compelling alternative to the Power Mac 7200 and even the 7600 for mainstream business needs.

Leaving the 7200 in the dust

When Power begins shipping PowerBase systems next month, it will offer three models, with 603e processors running at 180, 200 and 240 MHz. As with other Power models, you can have extra memory, storage, software and cards factory-installed, but the three standard configurations will all have 16 Mbytes of RAM, 256 Kbytes of Level 2 cache, a 1.2-Gbyte hard drive and an 8x CD-ROM drive.

With Apple also now on the 8x CD-ROM bandwagon, these memory and storage specs match those of Apple's entry-level business box, the PowerPC 601-based 7200/120. But the PowerBase systems cost appreciably less than the 7200, even assuming the latter will be discounted, and they deliver significantly better performance. At $1,495, the PowerBase 180 will sell for roughly 40 percent less than the 7200's list price of $2,299, yet it scores a full 50 percent higher on MacBench 3.0's Processor test. With the PowerBase 200, at $1,795, and the 240-MHz version, at $2,195, the price differential will be narrower, but the performance gap is all the larger. In fact, the PowerBase 200's Processor score tops that of Apple's 604-based Power Mac 8500/150, which at $3,599 costs twice as much; the PowerBase 240's score exceeds that of the 9500/150, which until discontinued this week, topped the Apple list at $4,799.

This astonishing processor performance can be attributed mainly to the high clock speed of the latest, die-shrunk 603e chips. But the other big contributor is a new memory controller that supports EDO (Extended Data Out) RAM, a type of fast memory used in high-end Windows/Intel systems but previously unknown in the Mac world.

For users looking forward to even faster processors in the future, the PowerBase's CPU is on a removable daughtercard. The 7200 is upgradable only via a logic-board swap, a much more expensive approach.

Graphics a-go-go

The PowerBase also delivers exceptional graphics performance, outscoring every Apple system with built-in video, even the new Power Mac 8500/180. The PowerBase systems come with 2 Mbytes of memory dedicated to video, expandable to 4 Mbytes. Moreover, the machines include a chip for 3-D graphics acceleration.

These graphics capabilities should be more than adequate for most buyers for years to come, but, just in case, Power placed the graphics subsystem on a low-cost, removable component, the riser that holds PCI cards. To add MPEG support in the future, for example, you'll need only to replace the riser with one incorporating a more advanced graphics controller. (This feature

See PowerBase, Page 75

Suitable for business as well as home and education, Power Computing's new PowerBase series is based on the 603e chip and Alchemy-derived logic boards. Power offers the machines in either a low-profile enclosure or a minitower.

SCORE CARD

PowerBase 180, 200, 240 ◆◆◆◆◆

Power Computing Corp. **List price: $1,495 and up***

Hits: Top-of-the-line processor and graphics performance at bargain-basement prices; upgradable CPU and graphics subsystem; PCI and DIMM slots, plus minitower option, provide adequate expandability; PS/2 keyboard connector.

Misses: Mediocre hard drive performance; no built-in Ethernet.

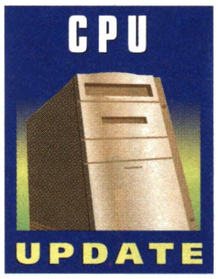
**PowerBase 180, $1,495; PowerBase 200, $1,795; PowerBase 240, $2,195.*

Key ◆◆◆◆◆ *Excellent* ◆◆◆◆ *Very good* ◆◆◆ *Good* ◆◆ *Fair* ◆ *Unsatisfactory*

Power Macs expensive but faster than ever

Overall value:

Power Mac 9500/200 ◆◆◆◆
Power Mac 8500/180 ◆◆◆◆
Power Mac 7600/132 ◆◆◆



Less than four months after its last speed bump, Apple has given its Power Macintosh line another nudge upward in performance.

One change affects all new systems: Apple is moving to include 8x CD-ROM drives across the board, offering sustained transfer rates of 1.2 Mbytes per second.

Otherwise, the low end of the business Mac line is changing only slightly. In the 7600, a 132-MHz 604 processor replaces the 120-MHz 604 used previously; the suggested price remains $2,999.

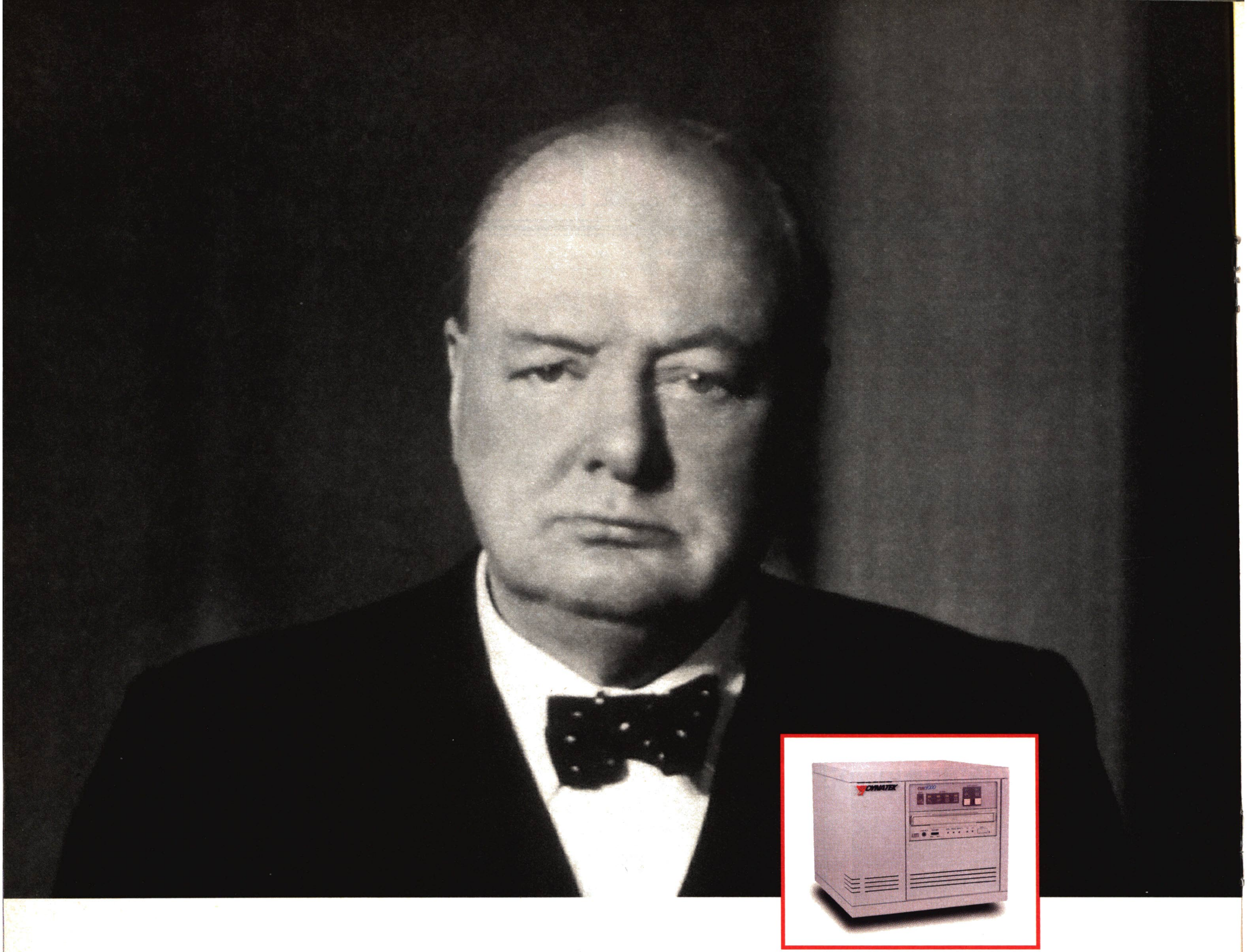
At the 8500 and 9500 levels, the changes are more substantial. The new Power Mac 8500/180, priced at $4,499, introduces the PowerPC 604e to the Mac line. Two new 9500 configurations also feature the 604e: A 200-MHz version costs $4,899, while a system with dual 180-MHz 604e processors on a card licensed from DayStar Digital Inc. tops the new line at $5,699 (see review, Page 79.)

Most of the new configurations are not yet available in volume, and because Apple could not provide review units, we were not able to try out the new systems. But we did borrow pre-release versions of the faster CPU daughtercards, which we plugged into older PCI Power Macs to run MacBench 3.0.

The result: no surprises, just steady progress. The difference between the 7600/132 and the 120-MHz version it replaces is scarcely noticeable, but it's another step in a process that has boosted performance of Apple's midrange system an impressive 70 percent over the past year — that is, when comparing to the scores on MacBench's Processor test of the new model and the 7500/100, which occupied the same place in the product line last summer.

The PowerPC 604e incorporated in the 8500/180 and the new 9500 offers not only

See Apple, Page 76



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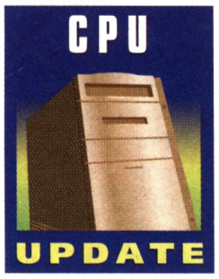


Apple's new 180- and 200-MHz PowerPC 603e-based Performa 6400s feature faster performance, more multimedia muscle than most home users could imagine and an impressive software bundle. While a good value, they are far from inexpensive.

The 6400/200 will make a $2,799 dent in the family budget in its base configuration; the 180-MHz model costs $400 less. Those prices do not include a display but do include a keyboard and mouse.

The 6400's logic board, code-named Alchemy, is the same design Apple used in its latest offering for the education market, the Power Macintosh 5400/120 (see 05.13.96, Page 29). It is also the architecture Power Computing Corp. uses in its new PowerBase line (see review, Page 73). The standard RAM configuration is 16 Mbytes, which includes 8 Mbytes soldered to the logic board and an 8-Mbyte DIMM in one of the two available DIMM slots. Up to 136 Mbytes can be installed, and as in the 5400, DIMMs do not have to be installed in matching pairs. The 6400/200 comes with a 256-Kbyte Level 2 cache; the cache, which should cost about $100, is optional for the 6400/180.

Storage is handled by a standard floppy drive, an 8x CD-ROM drive and a large, fast IDE (Integrated Drive Electronics) drive (1.6-Gbyte in the 6400/180, 2.4-Gbyte in the 6400/200). Offering more expandability than other Performas, the new machines have two PCI slots for 7-inch or smaller cards, the now familiar Performa video- and TV-expansion slots, a SCSI bus, and a 28.8-Kbps modem in the Comm Slot II.

And there are plenty of expansion options available, most notably Apple's Avid Cinema, a simple-to-use digital video product developed by Avid Technology Inc. specifically for the casual home user (see review, Page 83).

As the first Performa tower, the 6400 makes a design statement of sorts. Rather than a sensible desktop box that could easily accommodate the electronics, Apple responded to market preference for towers by offering a unit whose 9500-class dimensions are softened around the edges. Frankly, it looks like a laundry hamper, but some of that extra room was put to good use. For once, the tower design helps rather than hinders tasks such as adding memory, cards or drives.

Games really come to life thanks to this Performa's 16-bit audio capabilities, Sound Retrieval System Surround Sound and a clever built-in subwoofer that can do double duty when no external speakers are plugged in. A headphone jack and volume control share the front panel with an infrared sensor. A separate balance control for the subwoofer is inconveniently located on the back panel, however.

Performance

MacBench 3.0 test results (see chart, below) show that the 6400/200 is faster at CPU computational tasks and hard disk access than a Power Mac 7200/120.

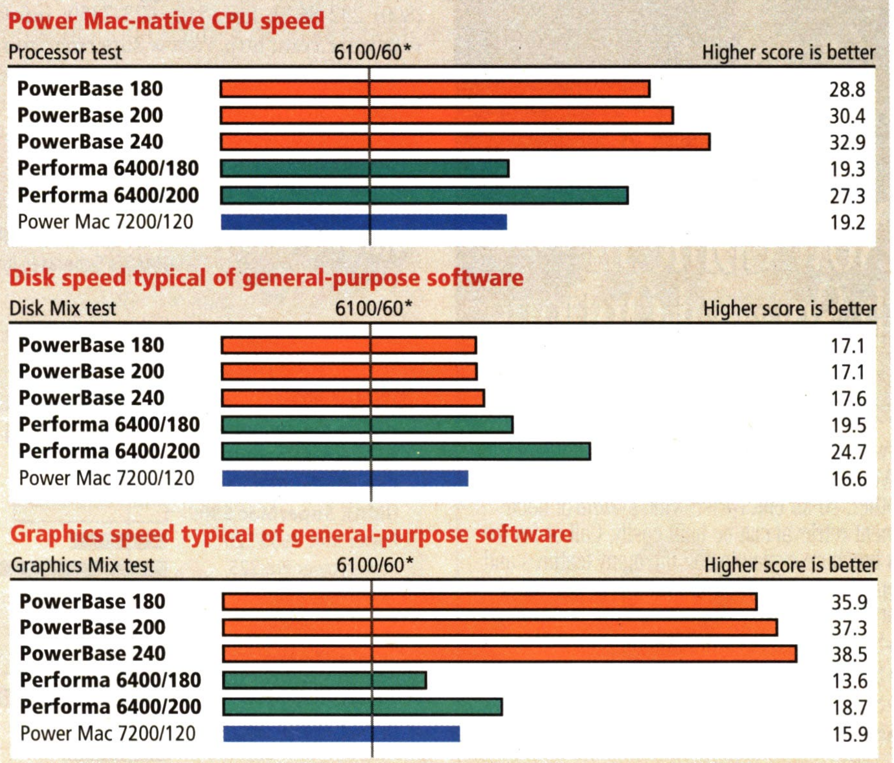
Graphics performance, however, isn't in the same class. Not only does the 6400 paint the screen slowly, the video RAM can't be expanded, so the only upgrade path is to install a graphics card in one of the two PCI slots. If you've filled both slots, you'll have to settle for a 17-inch or smaller monitor and only eight-bit color at resolutions greater than 800 by 600 pixels. This is incongruous for such a multimedia powerhouse.

Further, compared to PowerBase, Power's new 603e-based line, the Performas look less appealing. The PowerBase 200 scored 11 percent higher on the processor test than the 6400/200, while the PowerBase

See Performa, Page 83

PowerBase, Performa 6400 lines

Relying on the PowerPC 603e, these low-cost systems deliver excellent processor performance, although the 6400/180's lack of a cache lowered its test results. Both Performas had mediocre graphics performance.



Test configuration: All machines had 16 Mbytes of RAM; all monitor resolutions were 640 by 480 pixels in eight-bit color.

🟥 PowerBase line: System 7.5.3, 256-Kbyte Level 2 cache, 1.2-Gbyte IDE hard drive.

🟩 Performas: System 7.5.3, Revision 2. The 6400/200 had a 256-Kbyte L2 cache and a 2.4-Gbyte drive; the 6400/180 had no cache and a 1.6-Gbyte drive.

🟦 Power Mac 7200: System 7.5.3, 1.2-Gbyte drive, 256-Kbyte L2 cache.

*MacBench 3.0's score compares speed to a Power Mac 6100/60, which receives a 10.

PowerBase

From Page 73

was not implemented in our test unit.)

The PowerBase has three dynamic RAM DIMM slots; memory is expandable to 160 Mbytes. There are three PCI slots with room for full-sized cards. Ethernet is not built-in, so users who require it will have to fill one slot with an adapter. The proprietary Performa-style expansion slots found in the 5400 and 6400 have been eliminated.

The $1,495, $1,795 and $2,195 PowerBase configurations will come in a low-profile enclosure with no free storage bays, but for an extra $50 users will be able to select instead a minitower with two free, front-accessible 5.25-inch bays.

One final innovation: PowerBase models will ship with an ADB port, keyboard and mouse, but the system also provides a PS/2 keyboard port.

The one component that delivered merely acceptable performance was the IDE (Integrated Drive Electronics) hard drive, a 5.25-inch Quantum Corp. BigFoot. It matched the performance of the drive in the 7200/120 we reviewed last spring (see 04.22.96, Page 1), but that's nothing to write home about.

Conclusions

In every respect but hard drive performance, the case for the PowerBase vs. the 7200, is overwhelming. In fact, even potential buyers of Apple's new midrange model, the $2,999 Power Mac 7600/132, would do well to consider the PowerBase instead. It's missing some features of the 7600, such as memory interleaving, dual SCSI and video-in support, and some processor-intensive applications undoubtedly perform better on the 7600's 604 than on the PowerBase's 603e. But for general office use, the PowerBase simply delivers more for less.

Power Computing Corp. of Round Rock, Texas, is at (512) 388-6868; fax (512) 388-6798; fax-back (800) 788-3783; info@powercc.com; http://www.powercc.com. ☐

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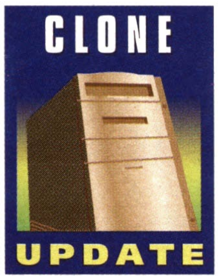
UMAX S900L/604e/200 a decent clone

Overall value:
UMAX S900/200 ♦♦♦♦



If Apple were the only other source for Mac OS hardware, UMAX Computer Corp. would be riding tall with the SuperMac S900L/604e/200, its 200-MHz 604e-based follow-up to the original S900 (see 06.03.96, Page 29). UMAX's attention to detail makes the S900/200 a faster, more accessible and more expandable machine than Apple's offerings, at a lower price.

The base configuration has a street price of $4,295. It includes a 200-MHz PowerPC 604e on an upgradable card; 512 Kbytes of Level 2 cache; 16 Mbytes of interleaved RAM on the logic board; another 16 Mbytes of RAM in two of the eight DIMM slots (expandable up to 1 Gbyte); six PCI slots; and the standard Mac serial, ADB and audio ports, including SCSI-2 and 10BASE T Ethernet. A fast 2.1-Gbyte hard drive and an 8x CD-ROM drive occupy two of the seven storage-device bays. An Integrated Micro Solutions Twin-Turbo PCI graphics card with 4 Mbytes of video RAM occupies one of the PCI slots.

The S900 is multiprocessor-ready and certified to be compatible with DayStar Digital Inc.'s nPower card (see review, Page 79), the Apple-endorsed standard. UMAX has promised another multiprocessor upgrade path. The S900 logic board contains a proprietary ASPD (Advanced Scalable Processor Design) slot for a second processor card. UMAX said adding a second processor card will be less expensive than retiring the original logic board and replacing it with the nPower card. The proprietary multiprocessor option was originally due in July for $995; UMAX has not announced a new delivery date.

Another interesting option, a $495 combination card with 100BASE T and an Ultra SCSI device controller, was originally slated for June, and is now due late this month.

Cache is king

The S900/200 stacks up well against Apple's new crop of PowerPC 604e-based Macs (see review, Page 73). In MacBench 3.0 Processor test results, it edged out the Power Mac 8500/180 by 17 percent, but it lagged behind the 200-MHz Power Mac 9500/200. It wasn't a surprise that Power Computing Corp.'s new PowerTower Pro 225, now the top of the Mac OS-compatible line, beat out the S900 and Apple's offerings. The PowerTower Pro systems all have 1-Gbyte Level 2 caches; the S900/200 has 512 Kbytes.

There is some controversy about the advantages of adding a second half-gigabyte of cache, but the MacBench 3.0 results indicate the performance gain can be substantial. UMAX said real-world Mac tasks exercise the cache less than MacBench 3.0 tests. Further, the 200-MHz S900 logic board has a 50-MHz bus, another factor that the company said affects real-world performance positively when compared with the 225-MHz PowerTower Pro machine with a 45-MHz bus speed. Since we did not perform real-world application testing, we were not able to substantiate these claims.

The S900/200 is a well-designed box that shares the easy-access advantage of the Genesis MP without its enormous size. Adding RAM and storage devices is a snap.

When we first looked at the S900, our only quibble was with the hinged door that hides the removable-device bays on the front of the unit. This time around, we changed our opinion: CD-ROMs and floppies gently nudge the door open when they eject, and the door can be removed by the user, so it isn't the obstacle we first thought.

Conclusions

Overall, the S900/200 is a fast, well-engineered Mac OS platform that is comparable to the competition. We look forward to seeing UMAX deliver its promised technical advantages, in the form of its combination fast networking/fast storage card and its multiprocessor upgrade.

UMAX Computer Corp. of Fremont, Calif., can be reached at (510) 226-6886 or (800) 232-8629; fax (510) 623-7350; info@supermac.com; http://www.supermac.com. — *By Dale Coleman*

Apple

From Page 73

faster clock speeds, but also several technical improvements. In particular, its internal caches are twice as large as in the original 604, at 32 Kbytes each for data and instructions. In the 8500, however, the new processor delivers a relatively modest performance increase, at least as measured by MacBench: The 604e-powered 8500/180 scores only 15 percent better in the Processor test than the 8500/150 with its unenhanced 604.

It's possible, however, that some applications will derive more benefit from the 604e — a hypothesis we hope to test with real-life applications, particularly Adobe Photoshop, once we receive final hardware. We also intend to measure the effect of replacing the 8500/180's 256-Kbyte Level 2 cache with a 512-Kbyte or 1-Mbyte cache DIMM.

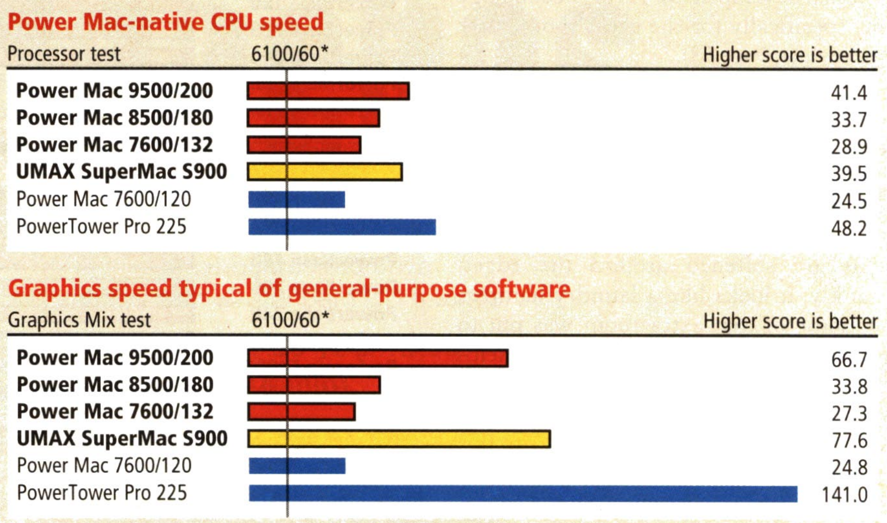
The 9500 appears to take better advantage of the 604e, presumably because it comes with twice as much cache — 512 Kbytes — as its junior sibling.On the Processor test, the 604e-equipped 9500/200 scores 30 percent higher than the 9500/150 and fully 60 percent higher than last year's standard-bearer, the 9500/132. Unfortunately, the 9500's cache is soldered to its logic board, so it's not possible to expand it to 1 Mbyte — which Power Computing Corp. has made possible to good effect in its new PowerTower Pro series (see 07.22.96, Page 1).

Depending on what street prices turn out to be, the new Power Macs appear to be considerably more expensive than the latest clone competitors. In addition, the Apple systems still have last year's graphics subsystems and are falling behind in that area. But for those who prefer Apple-branded hardware, this week's announcements offer a welcome improvement in other areas.

Apple can be reached at (408) 996-1010 or (800) 538-9696; fax-back (800) 462-4396; http://www.apple.com. — *By Henry Norr*

Power Mac speed bumps, SuperMac S900

The latest PowerPC 604 and 604e processors give Apple's Power Macs and UMAX's SuperMac line a modest but welcome performance boost.



Test configuration: System 7.5.3, monitor resolution set to 640 by 480 pixels in eight-bit color. Power Mac 9500, SuperMac S900 and PowerTower Pro tested with the graphics cards that are shipped as standard equipment.

*MacBench 3.0's score compares speed to a Power Mac 6100/60, which receives a 10.

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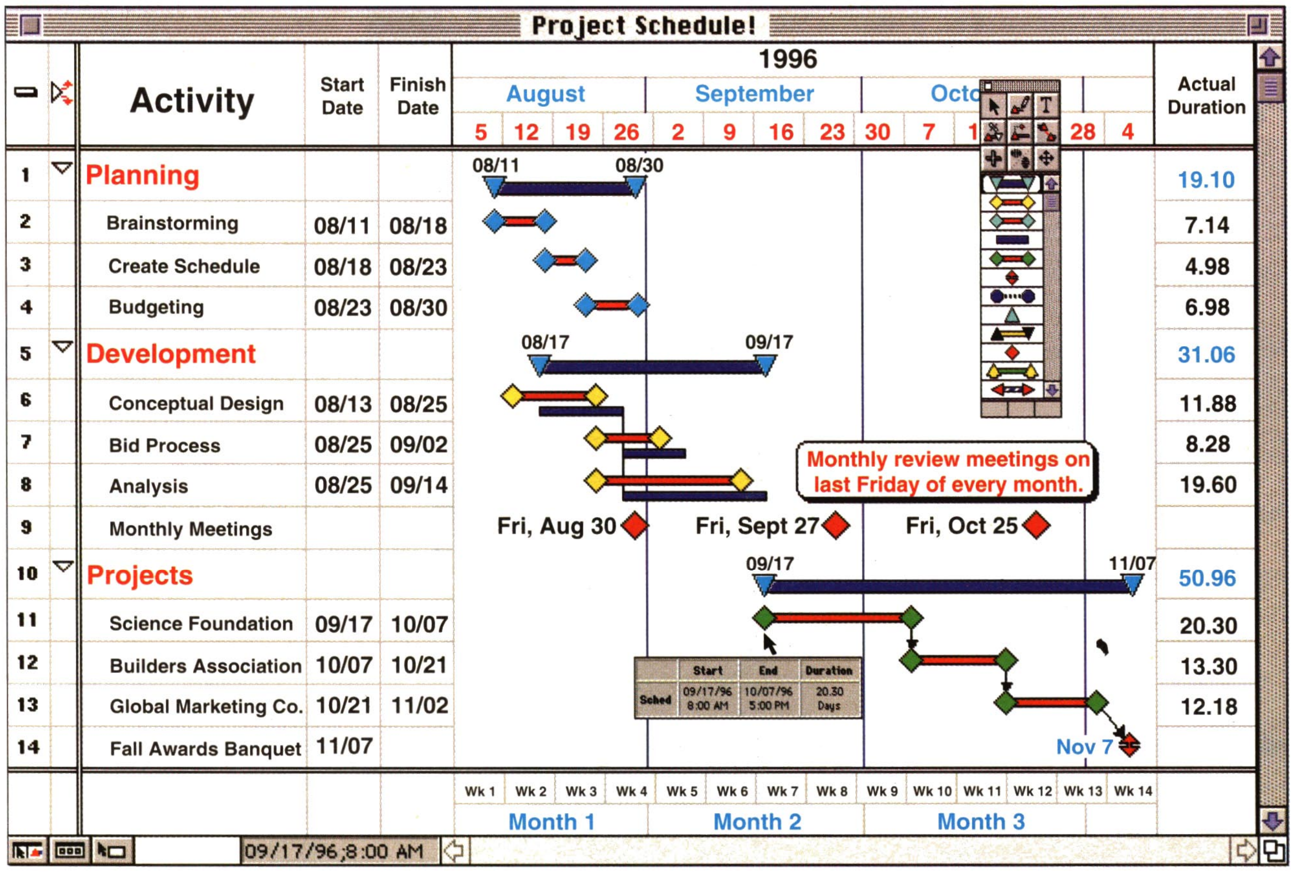

Project Schedule!

#	Activity	Start Date	Finish Date	Actual Duration
1	**Planning**			19.10
2	Brainstorming	08/11	08/18	7.14
3	Create Schedule	08/18	08/23	4.98
4	Budgeting	08/23	08/30	6.98
5	**Development**			31.06
6	Conceptual Design	08/13	08/25	11.88
7	Bid Process	08/25	09/02	8.28
8	Analysis	08/25	09/14	19.60
9	Monthly Meetings			
10	**Projects**			50.96
11	Science Foundation	09/17	10/07	20.30
12	Builders Association	10/07	10/21	13.30
13	Global Marketing Co.	10/21	11/02	12.18
14	Fall Awards Banquet	11/07		

Monthly review meetings on last Friday of every month.

	Start	End	Duration
Sched	09/17/96 8:00 AM	10/07/96 5:00 PM	20.30 Days

09/17/96;8:00 AM

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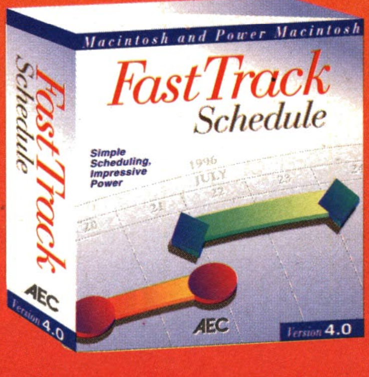

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MP options deliver low-cost speed boost

Overall value:

Genesis MP 360+ ◆◆◆◆
Power Mac 9500/180MP ◆◆◆◆
nPower 360+ card ◆◆◆◆

After an inauspicious start, the era of Macintosh multiprocessing may be about to flower. Apple's announcement this week of the Power Mac 9500/180MP, which uses the same technology as DayStar Digital Inc.'s new Genesis MP 360+, is a strong endorsement. UMAX Computer Corp. also joined the party by announcing that it will incorporate DayStar multiprocessing technology in a forthcoming dual 180-MHz 604e PowerPC Mac OS-based system of its own.

We tested the two newest stand-alone multiprocessor Mac OS systems — Apple's $5,699 9500/180MP and DayStar's $5,499 Genesis MP 360+ — as well as DayStar's $1,499 nPower 360+ upgrade board, the same card in Apple's and DayStar's MP machines. Like our tests of the first Genesis MP 600 (see 12.11.95, Page 1), results showed that multiprocessing can speed compute-intensive Adobe Photoshop tasks 200 percent or more.

The hardware lineup

DayStar's nPower board has two 180-MHz 604e processors. It is designed to replace the single processor on PCI Macs, including the 7500, 8500 and 9500, and UMAX's S900. It also provides the multiprocessing (MP) component for both the Genesis and the Apple 9500/200.

Other than using the nPower card, the Apple and Genesis machines are ordinary six-slot Mac OS systems. The Genesis has 12 DIMM slots, six PCI slots, standard Mac serial ports and built-in Ethernet. The $5,499 price does not include RAM, a hard drive or a video card because DayStar lets its resellers add RAM and peripherals. DayStar said it sells a configuration with 32 Mbytes of RAM, a 2-Gbyte hard drive and an Imagine128 video card from Number Nine Visual Technology Corp. for $7,946 but cautioned that its prices for peripherals are higher than those most resellers would charge.

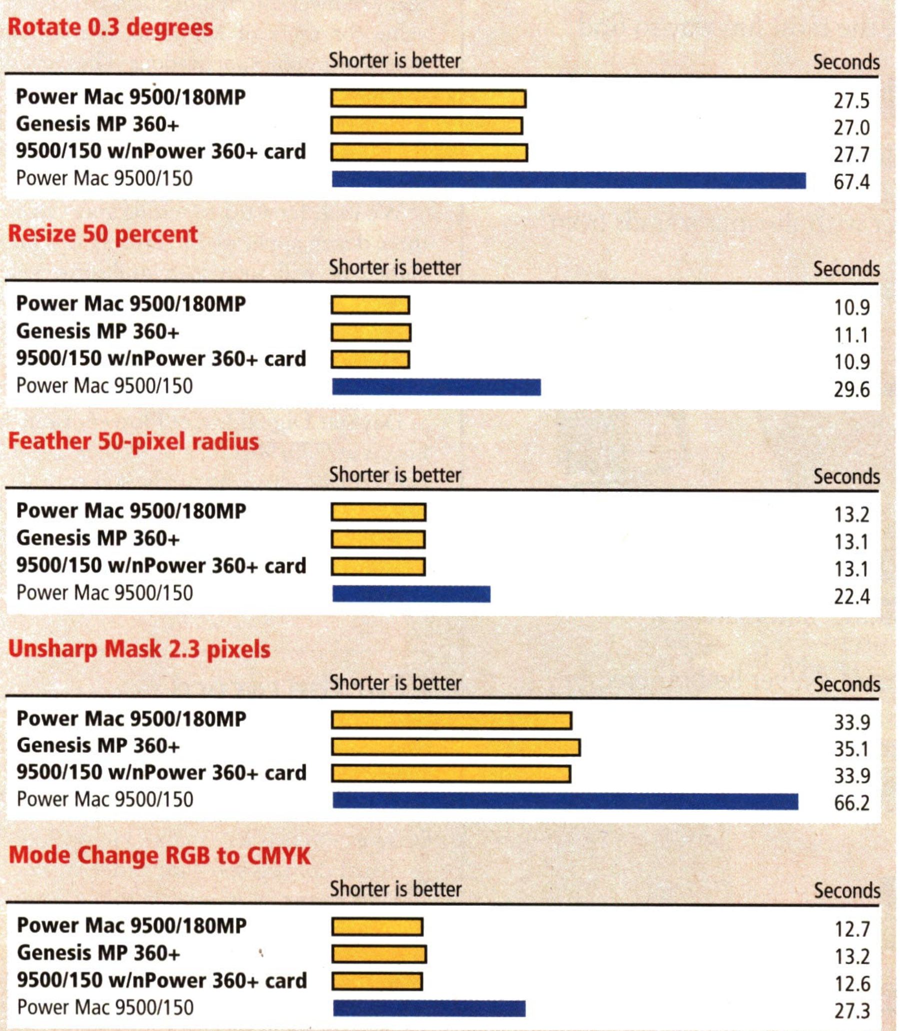
The Apple machine is a 9500, plain and simple. It has six PCI slots; 32 Mbytes of RAM, expandable to 768 Mbytes in its 12 DIMM slots; a 2-Gbyte hard drive; an 8x CD-ROM drive; Advanced Technologies Inc.'s XClaim GA video card with 2 Mbytes of video RAM; and standard ports.

Externally, the Genesis MP is the largest desktop or tower configuration you're likely to encounter. It's big, heavy, and so sturdy one could slaughter an ox on it with

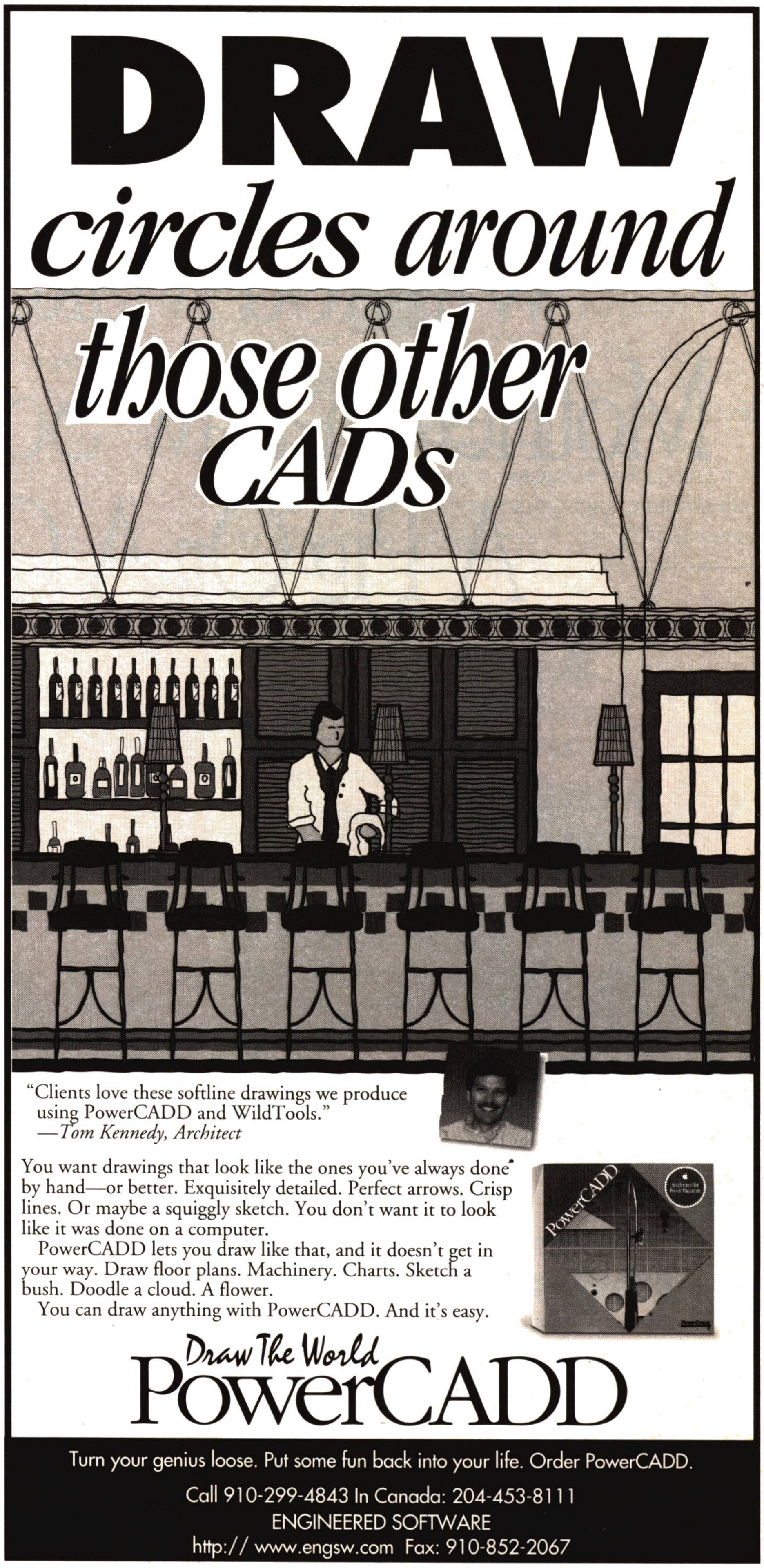
See Multiprocessing, Page 80

Multiprocessor Photoshop tests

Based on dual 180-MHz 604e processors, the multiprocessing Mac OS systems cut one-half to two-thirds off the time for five compute-intensive Photoshop tasks; all three MP systems had almost identical times.



Test configuration: Tests were run using a 50-Mbyte image and Adobe Photoshop 3.0.5 with a 192-Mbyte RAM partition.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Multiprocessing

From Page 79

confidence. Its heft aptly conveys the message that this is one box you need not discard after a few seasons. The ventilation system matches the industrial feel of the other components — that is, the drone of the Genesis MP fans will all but drown out the sound of all other office equipment and vacuum cleaners. The 9500/180MP, meanwhile, is housed in the standard 9500 tower.

Seeking killer apps

The ability to harness MP horsepower must be implemented on an application-by-application basis. One consequence of this approach is that, except for supported applications, a multiprocessor Mac OS machine works as if it had only one processor. This is reflected in MacBench 3.0 benchmarks, which are not designed to reflect dual-processor prowess. In our Processor test, all three MP configurations had scores similar to those of single-processor machines.

In real-world application testing, the advantages of multiprocessing shine. In another Apple announcement that bodes well for multiprocessing, the company has added extensive MP support to QuickTime 2.5, which was just released. We tested a beta of Version 2.5 to gauge performance improvements in movie compiling time and playback. The results were impressive. Cinepak and other compute-intensive software compressors/decompressors showed dramatic performance gains, with improvements approaching 100 percent. We used a DayStar demo application to play four movies simultaneously; all four played smoothly with dual 604e processors at their disposal, but the movies became jerky when we switched to a one-processor configuration.

However, Photoshop remains the "killer app" for multiprocessing. To gauge the potential speed boost provided by our MP systems, we tested them on five compute-intensive Photoshop functions (DayStar said more than 170 Photoshop functions are MP-enabled) and compared the results to those from a Apple Power Mac 9500/150. (We also did informal testing of the nPower card in UMAX's new S900/200 machine; it performed admirably, with results comparable to those when the card was installed in a Power Mac 9500/150.)

All three MP configurations delivered similar results; the Genesis was slightly slower, probably because of a slower hard drive. The MP machines shaved almost two-thirds off the time to resize our test 50-Mbyte image or to switch from RGB to CMYK; they halved the time for other functions such as Unsharp Mask and Arbitrary Rotate.

Conclusions

Speedups are not uniform across the board, even for applications with MP support, but are evident in specific tasks. Evangelism to get developers to support MP will obviously be key to the architecture's success.

All of the new MP options offer excellent performance. At $1,499, less than what many Photoshop accelerators used to cost, DayStar's nPower card stands out as an excellent value for users of MP-enabled compute-intensive graphics applications. The Genesis, in contrast, seems overpriced: For an extra $200, Apple's 9500/180MP adds 32 Mbytes of RAM, a 2-Gbyte hard drive, a CD-ROM drive and a video card.

We look forward to testing more of the three dozen applications DayStar said have gained or will soon gain multiprocessing support. Meanwhile, users of Photoshop and QuickTime applications such as Adobe Premiere and After Effects should consider multiprocessing a viable option.

DayStar Digital Inc. of Flowery Branch, Ga., is at (770) 967-2077 or (800) 972-8711; fax (770) 967-3018; http://daystar.com.

Apple can be reached at (408) 996-1010 or (800) 538-9696; fax-back (800) 462-4396; http://www.apple.com. — *By MacWEEK and MacUser staff*

For the record

Our review of Apple's Internet Server Solution (07.15.96, Page 25) should have said that it *is* possible to set up Open Door Networks Inc.'s HomeDoor virtual-domain software to display domain names so it appears that a company is maintaining its own Web site.

Also, our review of Apple's DOS compatibility cards (07.15.96, Page 1) incorrectly stated that the cards support OS/2. They do not.

Decisions. Decisions.

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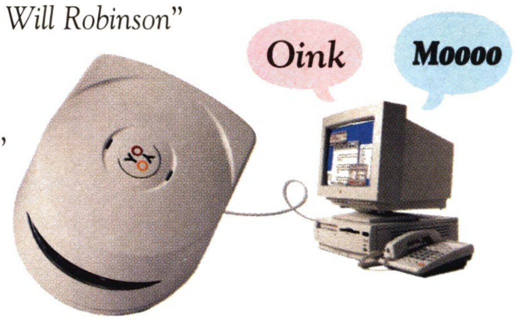

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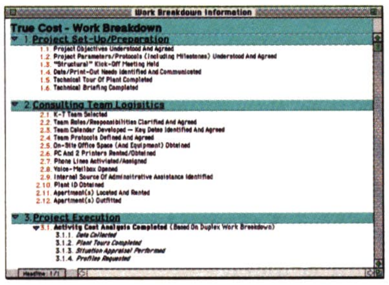


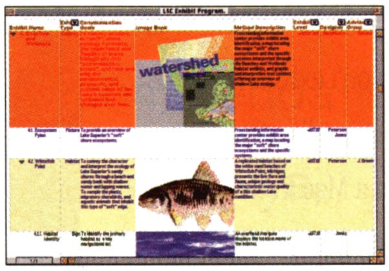
Work Breakdown Information

True Cost - Work Breakdown

1. Project Set-Up/Preparation
   - 1.1. Project Objectives Understood And Agreed
   - 1.2. Project Parameters/Protocols (Including Milestones) Understood And Agreed
   - 1.3. "Structural" Kick-Off Meeting Held
   - 1.4. Data/Print-Out Needs Identified And Communicated
   - 1.5. Technical Tour Of Plant Completed
   - 1.6. Technical Briefing Completed

2. Consulting Team Logisitics
   - 2.1. K-T Team Selected
   - 2.2. Team Roles/Responsibilities Clarified And Agreed
   - 2.3. Team Calendar Developed — Key Dates Identified And Agreed
   - 2.4. Team Protocols Defined And Agreed
   - 2.5. On-Site Office Space (And Equipment) Obtained
   - 2.6. PC And 2 Printers Rented/Obtained
   - 2.7. Phone Lines Activiated/Assigned
   - 2.8. Voice-Mailbox Opened
   - 2.9. Internal Source Of Administrative Assistance Identified
   - 2.10. Plant ID Obtained
   - 2.11. Apartment(s) Located And Rented
   - 2.12. Apartment(s) Outfitted

3. Project Execution
   - 3.1. Activity Cost Analysis Completed (Based On Duplex Work Breakdown)
     - 3.1.1. Data Collected
     - 3.1.2. Plant Tours Completed
     - 3.1.3. Situation Appraisal Performed
     - 3.1.4. Profiles Requested



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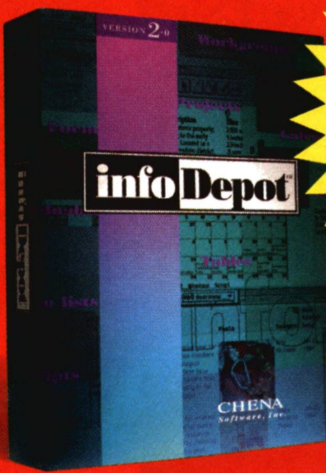

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Performa

From Page 75

180 was a whopping 49 percent faster on the processor test than the cache-less 6400/180. The Performas did deliver superior Disk Mix results but fell woefully behind the PowerBase line in graphics tests.

Conclusions

Although its price is relatively steep for the consumer market, the 6400 delivers what it promises: good performance, rich multimedia, easy expansion and a first-rate software bundle. Savvy shoppers will want to take a close look at alternatives such as the PowerBases, which offer even more performance and upgradability at lower prices. But it's a safe bet that the Performa 6400 will be a hit among holiday shoppers this fall.

Apple is at (408) 996-1010 or (800) 538-9696; fax-back (800) 462-4396; http://www.apple.com. — *By Dale Coleman*

Avid makes video inviting

Overall value: ♦♦♦♦

Digitizing video on the desktop is still a new and complex task that can overwhelm the pocketbook and confidence of the average user. Apple's Avid Cinema hardware and software package, developed by Avid Technology Inc., makes personal video publishing simple and inexpensive.

The $495 Avid Cinema is designed for the beginning or casual user rather than the video professional. The 7-inch card works in any PCI-capable PowerPC Performa (including the 5400, 5420 and 6400) equipped with the $109 Apple Video System, or in any PCI Power Mac equipped with digital audio-video, such as the 7600, 7200 or 8500. No special AV drive or video-tuned array is necessary, although the package requires 24 Mbytes of RAM, whereas most Macs now ship with only 16 Mbytes.

The Avid Cinema card provides S-video and composite-video out ports. A hardware compressor/decompressor for Motion-JPEG compression produces 30-frames-per-second video interpolated to full-screen 640 by 480 pixels from 320-by-240-pixel resolution in NTSC or PAL (European) formats.

But it's the software that's the big selling point for ease of use. It divides the movie-making process into four steps, with each step further divided into logical groupings. A familiar tab metaphor helps make the process inviting rather than daunting.

Avid Cinema starts at the beginning, with 21 storyboard templates that describe shots necessary for typical home productions such as birthday celebrations or graduations. Although this approach is an effective tool for beginners, it can be limiting because it has little hidden power. Those looking for professional features such as support for edit-decision lists or timecode stamping will be disappointed.

After storyboarding, you bring video in; a gauge indicates how much drive space is available.

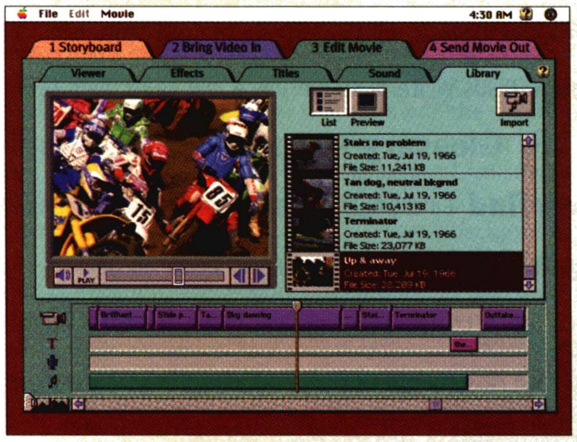
In Step 3 you edit video, adding special effects, titles and audio. Making simple but effective transitions and titles and adding music and sound to movies could hardly be easier, since the system is very responsive. Our first four-minute masterpiece was assembled from videotape and a CD audio track in less than 20 minutes. Avid Cinema rendered the scrolling introduction title in less than two minutes, after which it was available for on-screen preview or publishing to videotape.

In the final step, you send a movie out, saving it in one of several ways: onto videotape, as an optimized QuickTime movie; in a one-quarter screen Presentation mode; or onto a 2x or 4x CD-Recordable drive. Saving our four-minute movie to QuickTime took 45 minutes. A long, complex movie could take many hours.

Storage is always a concern with digital video. Apple says Cinema movies consume about 25 Kbytes per frame; a 10-minute video with three tracks of audio and text would fill a 500-Mbyte drive.

Image quality is good overall, despite being interpreted and filtered. Quality varies depending on the source material. Hi-8 or Super VHS originals acquired via the S-video port are preferred.

Avid Cinema will hold little appeal to professionals. But they should be first to realize that putting the power and pure fun of producing and publishing digital video into the hands of the average computer user is a great idea that is well-executed with Avid Cinema.



Stairs no problem
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Up & away
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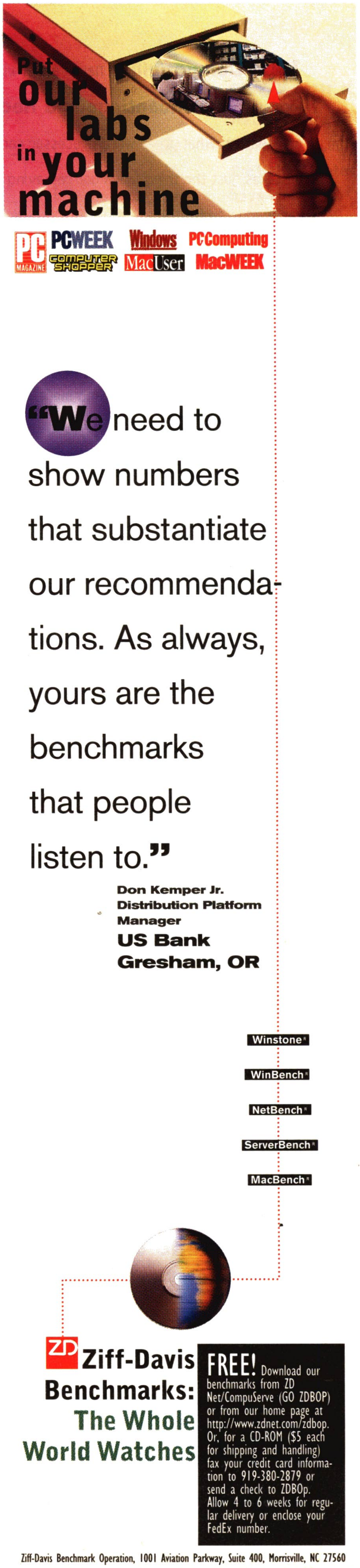
Apple's Avid Cinema makes it a breeze to add simple transitions, titles and sound to movies in the editing phase.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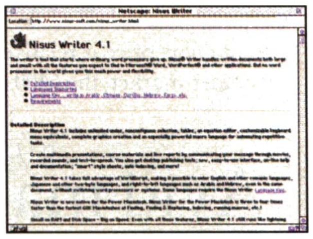

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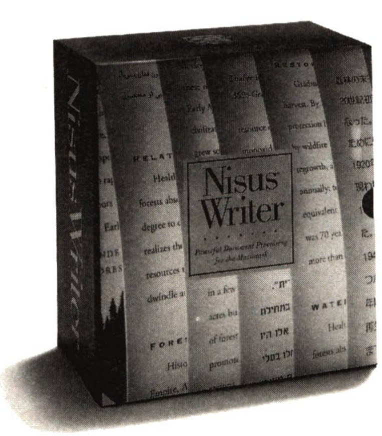

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SOLUTIONS

GET YOUR KICKS

Web66 estimates that of the nearly 85,000 schools in the United States, only 3,500 have Web sites.

INTERNET IN EDUCATION

Schools learning the ABCs of the Web for kids, teachers

By Mark Hall

On March 10, the president of the United States installed cable in a California school to highlight the importance of Net Day, a one-day event to draw attention to the government's efforts to get public schools online. For some, seeing Bill Clinton and Vice President Al Gore pitch in on Net Day underscored the promise of the Internet and the World Wide Web as vital educational tools. To others it showed how far behind most schools are on an increasingly wired planet.

"It was a call for help," said Gayle Hartman, a curriculum and technology specialist in Phoenix who consults with K-12 educators. "Teachers are asking for help. Some schools are getting hooked up, yes. But most are not."

In October, up to 30 states will follow California's lead with another nationwide Net Day. Organizers hope these events will dramatize the laggardly state of technology in schools today.

Those few U.S. schools that do have Internet connections are woefully behind in training and equipment. Yet even with their modest resources, some schools are making strides to bring their students the advantages of a cyber education.

Show and tell

In the Pacific Northwest, where salmon once clogged the rivers and streams, population expansion and overfishing drastically cut their range and numbers. High-school students at the Center for Agricultural Science Environmental Education (CASEE) decided to see if they could reintroduce salmon into a nearby stream. To accomplish this project, the kids went online.

"They used the Web and the Internet for communications back and forth with experts in the field," said Ron Carlson, executive director of the Battle Ground School District in Battle Ground, Wash., which includes CASEE.

The high-school students located and consulted with experts worldwide on salmon stream ecology. Using information and examples gleaned from the Web and elsewhere, students built a salmon spawning area and successfully released fish to breed there.

> **"Integrating computers and the Web in the classroom will be difficult because of the varying learning curves for each teacher."**
>
> *— Joyce Berg, school volunteer*

The Web chronicle of their work brought the students worldwide recognition. From what they learned, Carlson said, the students were able to host a salmon symposium at CASEE.

To date, most schools' online efforts are much less ambitious. Pupils at the Pinckney School in Lawrence, Kan., use the Web to showcase their art work. Some post book and science reports. Little else is presented to the world, except contact information for the school and background information on prominent Pinckney graduates.

According to Web66, an organization that keeps tabs on North American schools on the Web (http://web66.coled.umn.edu/schools.html), most of the student-posted Web pages are digitized versions of everyday school work, such as the Pinckney school displays. Many of the pages' links have expired, and few pages use even the most basic Web capabilities to link to other sources.

First grade

The inability of most schools to effectively exploit the Web is directly related to teacher training, only now trickling down to K-12 educators.

Harold Wright, principal of the North Scituate School in North Scituate, R.I., said his school had just received an Apple Partners In Education (PIE) grant for a Web server and classroom Macs that will help equip his students with the means to get online. But faculty training remains another hurdle.

"Established teachers are not that far along technologically," Wright said. "[And] new teachers coming out of college are not that much better trained."

Given that teachers focus on their curriculum, the lack of Internet expertise is not surprising, consultant Hartman said. "People overestimate how well-trained teachers are. Teachers are busy teaching," she said.

The lack of available technology and teacher training is frustrating some parents, Hartman said. They fear their children are being left behind.

That fear has mobilized many parents to volunteer to get their schools onto the Web. At the Foothill School in the Saratoga Union School District in Saratoga, Calif., Joyce Berg is a parent volunteer on the technology committee charged with installing new Mac LCs and bringing them online.

"The teachers love e-mail. And as a productivity tool, they're sold," she said. "But integrating computers and the Web into the classroom will be

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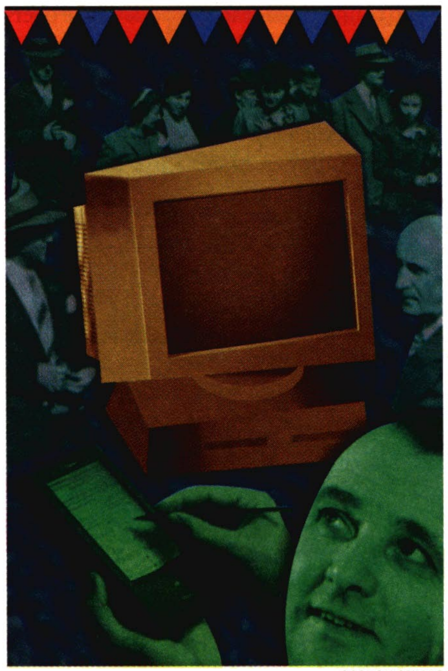
PETER SILVIA JR/BLACK STAR

Many teachers lack Internet experience, according to Harold Wright, principal of North Scituate School, so faculty training is a major hurdle in bringing the technology to schools.



GORDON STUDER

MACINTOUCH

RIC FORD

Stepping back for a long look at the Mac

This is a week for taking stock, as the annual Macintosh carnival assembles in Boston. The cloning of the Mac architecture is pushing development on the hardware side and delivering exciting new options and performance. The problem is that the Mac is not really a silicon-and-metal box, but rather an operating system and collection of applications.

The Mac OS, loaded with 12 years of patches and add-ons, has become unwieldy and unsteady. Applications suffer from its slow file system, a long tradition of memory-management issues and accumulating instabilities.

Four years ago, Apple product managers were in Boston extolling the virtues of a wave of upcoming Mac OS technologies: Open Collaboration Environment (OCE), QuickDraw GX, ColorSync, WorldScript, AppleScript, Translation Manager (to be a generalization of XTND technology) and Bento (a storage architecture now in OpenDoc).

The general concepts were strong, but Apple's execution was incredibly weak, especially in the critical area of e-mail and collaboration. Meanwhile, Microsoft Corp. developed and delivered major new

See MacInTouch, next page

SOLUTIONS

From previous page

difficult because of the varying learning curves for each teacher."

New math

Web training for teachers adds to the overriding issue of tight technology budgets for most schools. Last month a California education task force announced that the home of Net Day and the much vaunted Silicon Valley ranked 33rd among the states in technology spending — about $3 per student.

The report recommended that schools supply one computer for every four pupils to improve students' math and reading scores. Today 73 California students compete for each working computer.

Foothill School's principal, Louise Levy, said her students now have one Web-ready, multimedia Mac in each classroom, or a computer-to-student ratio of 1-to-26, significantly better than the state's average but well below the task force's suggestion. She said Foothill was only able to achieve its improved status because of school fund-raising efforts and volunteer work by parents.

Battle Ground schools average two computers per class: Macs in K-8 and a mix of Macs and PCs in high school. Carlson said the 15-site, 10,000-student school district has a technology budget of $500,000. He said he augments his training budget by having advanced high-school students teach a few instructors as well as the younger students.

In Rhode Island, funding is also constrained for public schools. Under Principal Wright, North Scituate School has become adept at getting grants; in addition to snagging the PIE money, the school recently won an Eisenhower grant for a networking project.

"Grant writing for technology has become a necessity," Wright said. "You have to have technology, and money is an issue."

Both Carlson and Levy have worked with local companies to get donated equipment, software, training and matching grants to stretch their budgets. Hartman said, "Administrators have to get creative with their budgets to keep up."

No recess from reality

Parents and schools understand that the Web is not as well-controlled as other information sources such as libraries and television. And while they are not happy with the indecent content that can be found there, both groups agree that to keep their students off the Web would hold them back.

Parents, students and teachers in the Battle Ground district sign waivers taking personal responsibility for their use of the Web while at school, Carlson said. He added that the local education service did take the added precaution of blocking all "alt" newsgroups on the Internet.

Levy said Foothill School is using a combination of blocking software with waivers like the ones at Battle Ground.

Head of the class

Budget, training and content drawbacks have not stalled schools' enthusiasm to embrace the Web, however. Carlson called it "a full-fledged worldwide library."

Jo Fleming, technology coordinator at the School for the Creative and Performing Arts in Lexington, Ky., said, "We've been bursting at the seams," waiting for the school's new Apple Server. "We've already integrated the Web into most social-studies activities, but we haven't had our presence up there yet," she said.

The school, which emphasizes drama, dance, art, writing and music in its curriculum, intends to have students write and produce a multimedia storybook this year that it will publish on its new Web site, Fleming said.

Most schools, however, attempt to imbue their Web pages with local projects that have a global lesson. For example, Battle Ground third- and fourth-graders took part in a worldwide weather research program that added their weather reports into a planetwide database. Students then researched the Web database for comparative studies.

North Scituate students this year will be gathering information about the Scituate Reservoir, which supplies most of Rhode Island with its drinking water. They will publish the results on the Web.

Educators said the Web is too new for any one approach to be the right one for teachers and students. Most schools will use it as a natural adjunct to more traditional research facilities. Others, however, want to engage their students to add to the quality of online information.

"What I see with the Web are creative, exciting, multimedia projects," said Foothill's Levy. "If it's just the same stuff as we do on paper, there's no point to it." □

Project:Making the Web easier
My Page
Text
Paint
Voice
E-Mail
Delete

Making the Web easier

Deciding to make use of the Web is easy. Actually doing it is hard, however, because the technology is not straightforward to many teachers who use it for classroom projects.

"Products like [Adobe] PageMill and SiteMill are sophisticated for teachers, even those who are used to using computers," said Gayle Hartman, a curriculum and technology specialist who consults with K-12 educators. "They're anxiety-producing as much as anything."

Net Explorations with WebWorkshop from Sunburst Communications Inc. of Pleasantville, N.Y., a Web-page creation tool for teachers and students, is a breakthrough in ease of use, Hartman said. It focuses on curriculum themes, such as math, science, geography and space exploration.

Designed by Vividus Corp. of Palo Alto, Calif., and licensed to Sunburst, Net Explorations is expected to ship in September for $39.95. Site licensing prices will vary.

To hasten page creation, Net Explorations lets several students create pages on one Mac. They can choose from a selection of background designs, icons and other interface elements. The program includes "stamps," which are predefined and reviewed links to Web sites that relate to the project themes.

Once a student has built a Web page, the software creates all the HTML tags necessary to post the page. For schools that purchase Net Explorations, Sunburst will offer 5 Mbytes of server space — equivalent to about 100 Web pages — for 90 days at no charge in order to kick start the schools' online efforts.

— By Mark Hall

MACINTOUCH

From previous page

operating systems. Without the arrival of QuickTime and 680x0 emulation on the PowerPC, things would be in a sorry state, indeed.

More technologies

Now Apple is touting Mac OS 8, code-named Copland, along with OpenDoc, Cyberdog, Open Transport and the PowerPC Platform (PPCP), plus all the QuickDraw and QuickTime variants. Will these projects do better than their predecessors? Their impact, so far, is limited. OpenDoc is perhaps the biggest bet along hot-trend lines, but it lacks the clear, compelling energy of the original Mac.

A 3-D interface would be revolutionary, but we are a long way from a real 3-D desktop or meaningful interface animation, even in the Copland future.

Meanwhile, none of the plans overhauls the most fundamental and critical core of the operating system, its file system. The Mac is dying for a new, fast file system to compete with Windows and Unix and to more effectively handle the load of all the information we create and manipulate.

Compare Claris Corp.'s FileMaker performance on a PC with its performance on a Mac, or look at Apple's choice of Unix for its high-end servers. Apple shows no sign of delivering the goods, even in Mac OS 8. Copland promises cool searching and organization, but these features are of limited value if Apple doesn't build them on a fast new file system.

None of the plans fixes the fundamental part of the Mac OS: its file system.

Other possibilities

It's past time for a fresh start. The Newton was one such attempt but was so poorly handled that it initially was a joke. As it now reaches a level of real usefulness, it still seems odd that it was not integrated with the Mac; that there was no powerful, laptop-size version; and that its data "soup" is not on the Mac OS menu. There are real possibilities for synergy and growth there.

At the opposite end of the spectrum is another possibility. The Mac OS has already been ported to Unix in the form of the low-profile Macintosh Application Environment, and Apple is finally letting developers port Linux to the Mac. Perhaps the Mac's superior interface could be mated to a more robust Unix kernel and file system, plus some newly developed technologies, to give Windows NT some competition. Even the bizarre idea of coupling the Mac interface with an NT core is reportedly under discussion at Apple.

The best idea, redesigning the Mac OS from scratch, was an option eight years ago but is no longer a real possibility.

Focus and perspective

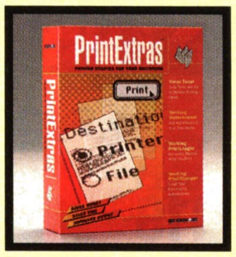
Where does all this leave us, and what will the future bring? As the halls fill with hot air and hype, the real test is software running on hardware. Will we see Windows NT and Solaris running on a PPCP computer side by side with the Mac OS? Which operating system feels and performs better in head-to-head competition? What applications does it run and what will it run a year from now?

Will there be truly innovative software, not available on Windows, performing new tasks essential to real people? Will anyone demonstrate Mac-only hardware that provides a compelling, distinctive advantage for the platform?

Or will there be nothing but vague promises and incremental improvements? That is the worst scenario. The Macintosh thrives only on innovation and performance in human-centered computing. Customers get it, most Mac developers get it, and some of the folks at Apple still get it, too. Let's hope it keeps coming. □

Comments on MacInTouch are welcome at (508) 897-2621. Please address e-mail to ricford@macintouch.com on the Internet or 72511,44 on CompuServe. The MacInTouch home page is at http://www.macintouch.com/.

Printer Enhancements



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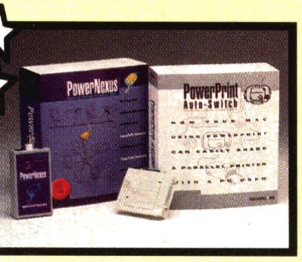

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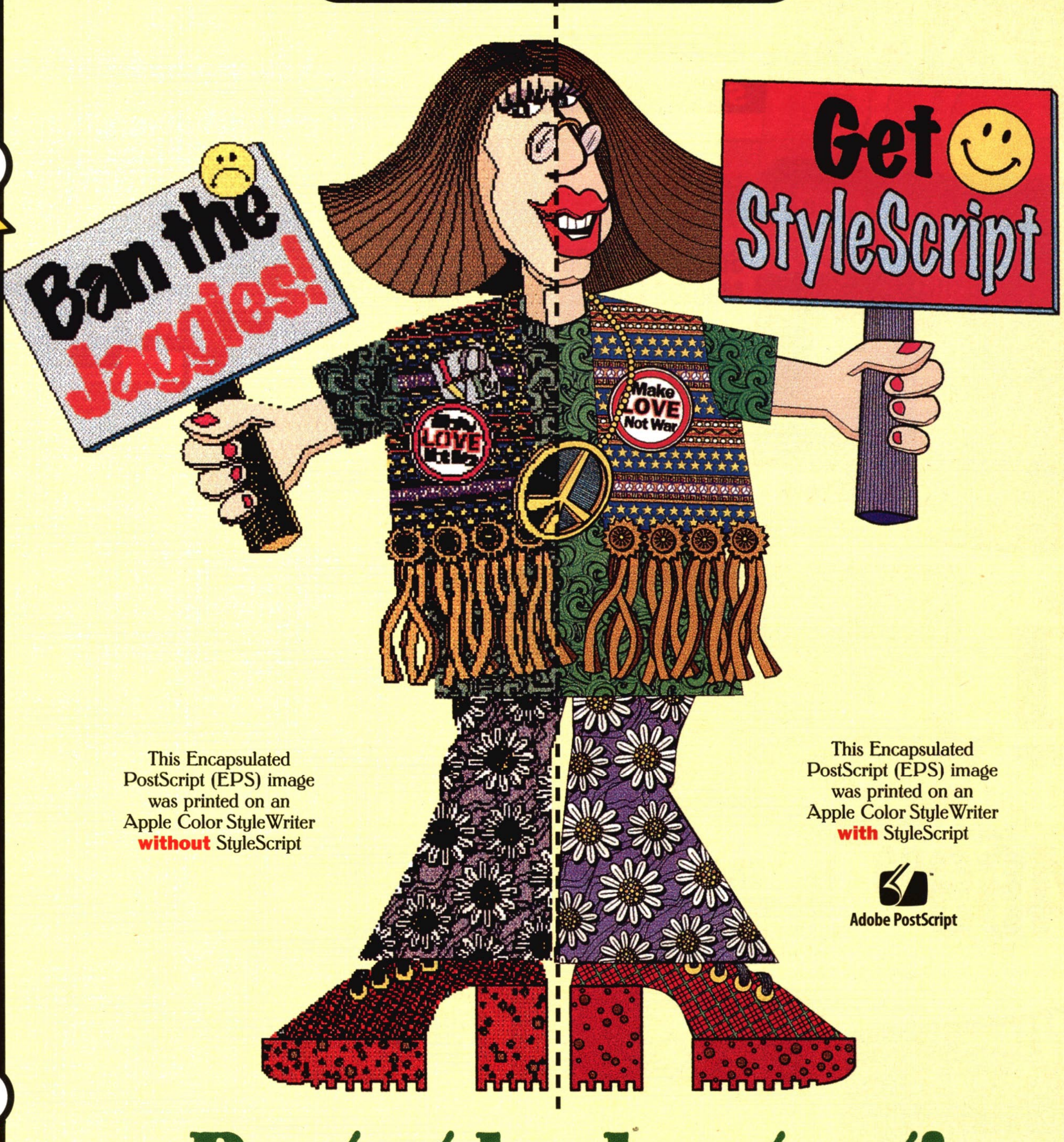

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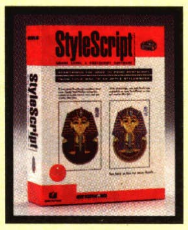

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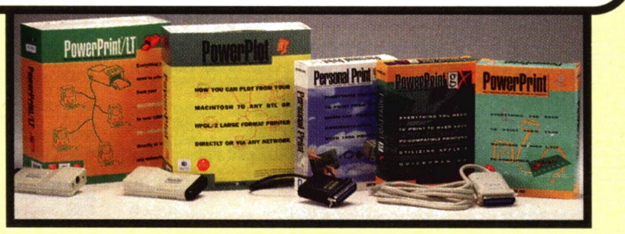

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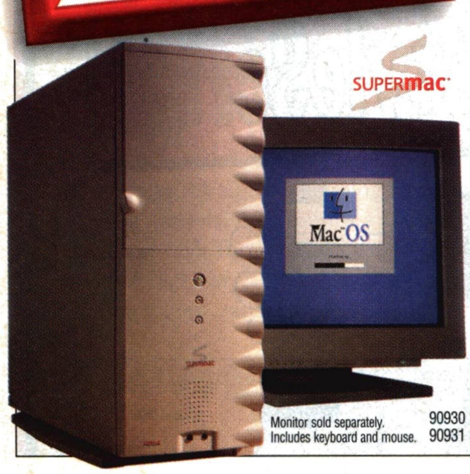

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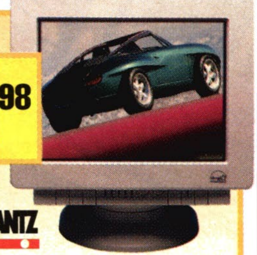

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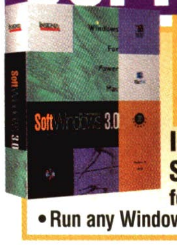

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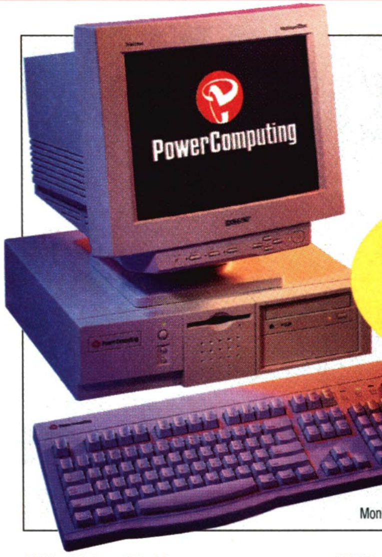

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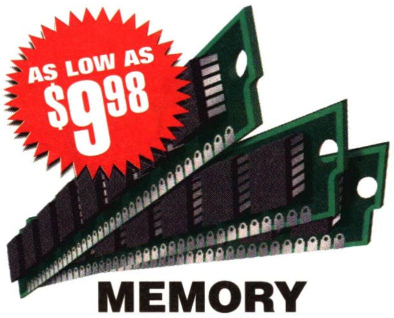

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This incredible drive has the performance you would expect from a 7200 rpm mechanism but with a 5400 rpm drive's price – and reliability! The APS MS 2000 formats to 2047MB, delivers sustained reads at up to 4.54MB/sec. and sustained writes at up to 7.31MB/sec, has an average access time of 20 ms and average seek of 9.6 ms.

3GB FOR THE PRICE OF A 2GB DRIVE!

APS Q 3200

GREAT PRICE

$499.95

Internal configuration

- ✓ 3GB for the price of 2GB
- ✓ 4500 rpm mechanism
- ✓ High performance Ultra SCSI interface

Quantum

ICE

It's like getting an additional gigabyte for FREE. The new APS Q 3200 is priced lower than many 2GB SCSI drives, yet it delivers 3000MB of reliable storage. The drive uses MR heads and an advanced PRML read channel to fit its 3GB into a 3.5" low profile Ultra SCSI drive.

1.2GB OF STORAGE FOR ONLY

APS Q 1280

$249.95

Internal configuration

- ✓ 4500 rpm mechanism
- ✓ High areal density and PRML read channel
- ✓ Ultra SCSI interface
- ✓ 3-year warranty

MacUser/ZD LABS

Quantum

ICE

Finally there's a hard drive that combines the reliability of a 4500 rpm mechanism with high performance. The APS Q 1280 uses MR heads, PRML and Ultra SCSI technology for improved performance. It is backed by a 3-year warranty.

2GB BARGAIN!

APS Q 2100

$399.95

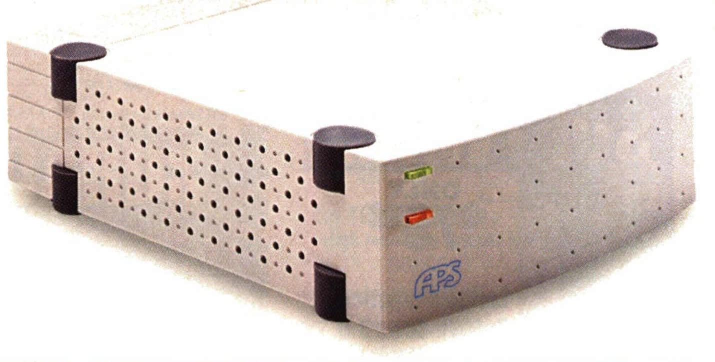
Internal configuration

- ✓ Reliable 4500 rpm mechanism
- ✓ MR heads, PRML and Ultra SCSI Technology
- ✓ Exceptional value among 2GB drives
- ✓ 3-year warranty

Quantum

New Ultra SCSI!

ICE



Give your Mac the extra storage space it needs by installing the new APS Q 2100. At only 20¢ per MB internal, the APS Q 2100 is the value leader in 2GB SCSI hard disk drives. Its performance is a great match with any application, and it is backed by a 3-year warranty.

APS SCSI DRIVES

Model	Capacity/Features	Internal	SR2000
APS Q 840 Quantum 840 Trailblazer	**811MB** 4500 rpm	$189.95	$259.95
APS Q 1280 Quantum Fireball TM	**1222MB** 4500 rpm	249.95	349.95
APS Q 2100 Quantum Fireball TM	**2100MB** 4500 rpm	399.95	499.95
APS Q 3200 Quantum Fireball TM	**3200MB** 4500 rpm	499.95	599.95
APS MS 2000AV Micropolis 4421AV	**2047MB** 5400 rpm	549.95	649.95

APS IDE DRIVES FOR MACINTOSH

Model	Capacity/Features	Internal
APS Q 1280A Quantum Fireball II 1280	**1222MB** 5400 rpm (Fast ATA-2)	$229.95

APS POWERBOOK DRIVES

Model	Capacity/Features	Internal
APS Q 1.08 Quantum Europa	**1037MB** 3800 rpm, IDE – Fast ATA-2	$399.95
APS I 1.2 IBM Travelstar DPRS-21215	**1200MB** 4900 rpm, SCSI-2	699.95

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Summer 1996 CATALOG

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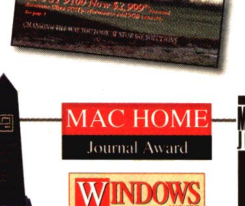
APS Drives, Supplies & Accessories



These products are performance-matched for optimal performance in the PowerPC environment.

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Then call 816-920-4150 from a fax machine with a handset or fax modem and follow the instructions.

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BMUG FALL 1994 CHOICE PRODUCT

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MAC HOME Journal Award

WINDOWS MAGAZINE 1995 WIN 100

1994 MAC HOME JOURNAL READERS' CHOICE

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MACWORLD 1993 World Class Award Winner

POSITIVE PERFORMER

Inc. MCI

**Available only in full-height case*

♦♦♦♦ MacWEEK

THE NAME TO REMEMBER IN MACINTOSH DATA STORAGE

INTEGRATED CLIMATE CONTROL ELECTRONICS

THE IC²ING ON THE CAKE

Now introducing IC²E, the industry's hottest (and coolest) enclosure cooling technology.

A radical new concept in drive mechanism climate control, APS exclusive IC²E system uses digital technology to sense heat build-up around the drive mechanism. Applying that information, IC²E controls a high-performance, super-efficient ball bearing fan sub system to maintain mechanism temperature comfortably within the manufacturer's specified operating range. Should the mechanism exceed the specified operating temperature range, the intelligent IC²E circuitry provides a clear indication that a thermal problem exists. This approach drastically reduces cooling noise at low ambient temperatures, and improves both fan and drive mechanism life.

4GB FAST/WIDE PERFORMANCE CHAMP

APS MS 4.0W

JUST $999.95

Internal configuration

MICROPOLIS

- ✔ Overall highest-performance hard drive
- ✔ Amazing 6.16MB/sec. reads & 13.70MB/sec. writes
- ✔ 5-year warranty

Remarkable speed is what you'll get with the APS MS 4.0W. Its 13.70MB/sec. sustained writes make it a perfect match for Photoshop, powerful graphics programs, large databases – really any disk-intensive application. The APS MS 4.0W is backed by a 5-year warranty.

STORE IT ALL! 4GB - A REAL STEAL

APS MS 4.0

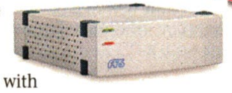
MacUser ZD LABS ★★★★

$899.95

Internal configuration

MICROPOLIS

- ✔ 7200 rpm mechanism
- ✔ Our fastest SCSI-2 4GB drive
- ✔ 5-year warranty



Supplying the speed and capacity needed with disk-intensive applications like 3D rendering and image editing, the APS MS 4.0 is a terrific choice for heavy-duty storage duties on your Power Mac or Quadra. This 7200 rpm performance champ formats to over 4GB and boasts sustained reads and writes of 4.1MB/sec. and 5.1MB/sec., respectively.

4GB HIGH-PERFORMANCE AV

APS MS 4.0AV

JUST $999.95

Internal configuration

MICROPOLIS

- ✔ 7200 rpm mechanism delivers high transfer rates
- ✔ Advanced cache management system
- ✔ Hybrid servo provides superior performance
- ✔ 5-year warranty

MacUser ZD LABS ★★★★

With sustained reads of over 4MB per second and sustained writes of over 5MB per second, the APS MS 4.0AV is the ideal entry to mid-level drive for AV use. Its thermal calibration helps prevent data stream interruption.

HIGH PERFORMANCE 4GB

APS Q 4.0

- ✔ Transfer rates up to 4.56MB/sec.
- ✔ Embedded servo eliminates thermal recalibration
- ✔ 7200 rpm mechanism delivers high transfer rates
- ✔ 5-year warranty

JUST $899.95

Internal configuration

Quantum

MacUser ZD LABS ★★★★½

Using and embedded servo as well as a high-performance 7200 rpm Quantum Atlas mechanism, the APS Q 4.0 is equally at home with demanding AV and non-AV applications. The APS Q 4.0 also uses a huge 2MB cache to achieve sustained reads and writes of up to 4.45MB/sec. and 4.56MB/sec, respectively.

BULK STORAGE, BULK PRICE - 9GB JUST

APS MS 9.0

$1899.95

Internal configuration

MICROPOLIS

- ✔ Best cost per MB in its class
- ✔ 8669MB formatted capacity
- ✔ Best performance & value in 9GB drives
- ✔ 5-year warranty

The high-capacity APS MS 9.0. formats to just under 9GB and has the lowest cost per MB in its class. It supports sustained reads of 3.55MB per second and writes of 5.82MB per second with an access time of 16 ms.

APS HIGH-PERFORMANCE SCSI DRIVES

Model	Capacity/Features	Awards	Internal	SR2000
APS I 2160 IBM Ultrastar ES	2063MB 5400 rpm	POWER MATCHED FOR POWER PC	$449.95	$549.95
APS MS 2000 Micropolis 4421	2047MB 5400 rpm	POWER MATCHED FOR POWER PC MacUser ZD LABS ★★★★	449.95	549.95
APS MS 4.0 Micropolis 3243	4064MB 7200 rpm	POWER MATCHED FOR POWER PC MacUser ZD LABS ★★★★	899.95	999.95
APS Q 4.0 Quantum Atlas XP34300	4101MB 7200 rpm	POWER MATCHED FOR POWER PC MacUser ZD LABS ★★★★½	899.95	999.95

APS HIGH-PERFORMANCE SCSI DRIVES

Model	Capacity/Features	Awards	Internal	SR2000
APS MS4.0AV Micropolis 3243AV	4064MB 7200 rpm	POWER MATCHED FOR POWER PC	$999.95	$1099.95
APS MS 9.0 Micropolis 1991	8669MB 5400 rpm	POWER MATCHED FOR POWER PC	1899.95	2099.95*
APS MS9.0AV Micropolis 1991AV	8669MB 5400 rpm	POWER MATCHED FOR POWER PC MacUser ZD LABS ★★★★	1999.95	2199.95*

APS FAST/WIDE SCSI DRIVES

Model	Capacity/Features		Internal	SR2000
APS MS 2.0W Micropolis 4221W	1955MB 7200 rpm	POWER MATCHED FOR POWER PC	$649.95	$749.95
APS MS 2.0WAV Micropolis 4221WAV	1955MB 7200 rpm	POWER MATCHED FOR POWER PC	749.95	849.95
APS MS 4.0W Micropolis 3243W	4064MB 7200 rpm	POWER MATCHED FOR POWER PC	999.95	1099.95
APS MS 4.0WAV Micropolis 3243WAV	4064MB 7200 rpm	POWER MATCHED FOR POWER PC	1099.95	1199.95

*Available only in full-height case

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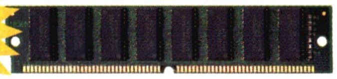
RAM for all Macs



Call for current RAM prices

- 30-day money-back guarantee on all APS brand products. Your risk is the cost of shipping.
- Drive-for-Drive Repair or Replacement Warranty. APS will, at its discretion, replace or repair products found to be defective according to the terms of the product's warranty.
- Refused orders subject to 20% restocking fee.
- Listed capacities are formatted.
- Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.
- Internal hard drives include brackets, cables, cords and LEDs required for operation with the specified Macintosh where applicable. External SCSI-2 drives come with a premium SCSI cable, power cord and user guide.
- You may need to install system software appropriate to your machine before using our hard drives.
- Prices and specifications are subject to change without notice. Not responsible for typographical errors.
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fomega jaz
APS

JAZ IS HERE!

1GB REMOVABLE

GREAT PRICE **$499.95**

External configuration
SR 1000 or SR 2000 case
Delivery after 8/5/96

Price includes one 1GB cartridge!

The immense 1GB capacity of Jaz's removable media has changed the removable storage market forever! The APS Jaz's performance rivals most fixed-platter hard disk drives; and who would you rather buy it from than APS?

APS Jaz

- ✔ Hard drive performance
- ✔ Huge 1GB capacity on removable media
- ✔ Choice of enclosure

ICE
SR 2000 enclosure

POWER MATCHED FOR POWER PC

540MB REMOVABLE SyQuest COMPATIBLE

APS M540

GREAT PRICE **$299.95**

External configuration

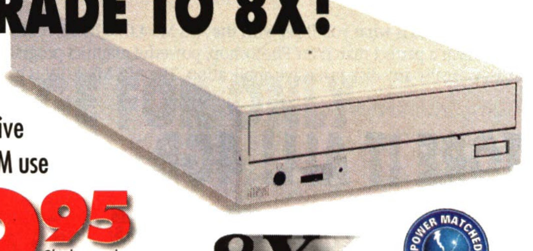
- ✔ 540MB capacity on removable media and full SyQuest 270 media compatibility
- ✔ Terrific removable media performance – sustained reads up to 2.68MB/sec. and a 9.9ms average seek

ICE
POWER MATCHED FOR POWER PC

Attention graphics professionals and desktop publishers: you now have a high-capacity, high-performance removable disk alternative. The new APS M 540 provides 540MB of storage on reliable, single-platter media and is capable of transfer rates of up to 2.68MB/sec. The APS M 540 is also read/write compatible with your existing SyQuest 270 cartridges.

TIME TO UPGRADE TO 8X!

APS CD-8



- ✔ High performance 8X CD-ROM drive
- ✔ Great for home and office CD-ROM use

$229.95

Slimline enclosure
SR 2000 $299.95

8X
POWER MATCHED FOR POWER PC

Smooth full-screen video output, the 8X performance of the new APS CD-8 supercharges any CD-ROM application! Its speed enhances multimedia AND business CDs. At this incredibly low price, you can hardly afford to live with that old 2x or 4x CD ROM drive.

HIGH PERFORMANCE 8X CD-ROM!

APS CD-8 Pro

- ✔ Fast 1.2MB/sec. transfer rates
- ✔ 115 ms average access
- ✔ Smooth video output

$299.95

External configuration

ICE
POWER MATCHED FOR POWER PC

Take advantage of the high performance 8X CD-ROM speed of the new APS CD8 Pro to supercharge any CD-ROM application. The APS CD8 Pro's 1200KB per second maximum transfer rates in 8X mode provide smoother full-screen video output than earlier generations of CD-ROM drives, and makes it terrific for use with large, complex files. Additionally, the fast average access time of the APS CD8 Pro makes it a great match with interactive multimedia.

APS QIC & DAT TAPE BACKUP SYSTEMS

Model	Capacity/Features	Awards	Internal	SR2000
APS HyperQIC™ Travan 4 Mechanism	2GB	MacWeek ◆◆◆◆ MacUser ZD LABS $$$½	N/A	$499.95
APS ProDAT DDS-2 Mechanism	4GB		$649.95	699.95
APS HyperDAT® DDS-2 Compression Mechanism	8GB	POWER MATCHED FOR POWER PC	849.95	899.95
APS HyperDAT® Pro DDS-2 High-Speed Mechanism	8GB	POWER MATCHED FOR POWER PC	949.95	999.95

POWER MATCHED FOR POWER PC

These products are performance-matched for optimal performance in the PowerPC environment.

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Then call 816-920-4150 from a fax machine with a handset or fax modem and follow the instructions.

APS DLT TAPE BACKUP SYSTEMS

Model	Capacity/Features	Awards	Full-Height
APS DLT30 Digital Linear Tape Mechanism	30GB	POWER MATCHED FOR POWER PC MACUSER EDITORS' CHOICE AWARD 1995 FINALIST	$2999.95
APS DLT40 Digital Linear Tape Mechanism	40GB	POWER MATCHED FOR POWER PC	4999.95
APS DLT4500 Digital Linear Tape Loader	200GB	POWER MATCHED FOR POWER PC	8899.95

All APS tape drives include Retrospect® by Dantz®

- 30-day money-back guarantee on all APS brand products. Your risk is the cost of shipping.
- Drive-for-Drive Repair or Replacement Warranty. APS will, at its discretion, replace or repair products found to be defective according to the terms of the product's warranty.
- Refused orders subject to 20% restocking fee.
- Listed capacities are formatted.
- Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.
- Internal hard drives include brackets, cables, cords and LEDs required for operation with the specified Macintosh where applicable. External SCSI-2 drives come with a premium SCSI cable, power cord and user guide.
- You may need to install system software appropriate to your machine before using our hard drives.
- Prices and specifications are subject to change without notice. Not responsible for typographical errors.
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APS REMOVABLES

Model	Capacity/Feature	Awards	SR1000	SR2000
APS SQ 5200 Compatible with 200, 88 and 44MB cartridges	194MB	MacUser RECOMMENDS MacUser ZD LABS $$$$½	N/A	$399.95
APS M540 Compatible with SyQuest 270 & EZ 135 cartridges	500MB	POWER MATCHED FOR POWER PC	N/A	299.95
APS Jaz 1GB Jaz cartridges $99.95 ea.	1GB		$499.95	499.95

APS MO DRIVES

Model	Capacity/Features	Awards	SR2000
APS 230 MO 4500 rpm drive/230MB	230MB	MacUser ZD LABS $$$$	$449.95
APS PD4 650MB optical storage with 4X CD-ROM in one device	CD-ROM/Removable Optical		499.95*
APS 2.6GB MO 4MB cache/2.6GB	2.6GB Uses 2.6GB cartridges or 1.3GB cartridges	POWER MATCHED FOR POWER PC	1799.95

1994 World Class Winner Macworld
MACWORLD MW EDITORS' CHOICE
MACWORLD MW SERVICE HERO
MacUser RECOMMENDS
MACUSER EDITORS' CHOICE AWARD 1993 WINNER
BMUG FALL 1994 CHOICE PRODUCT
MacUser ZD LABS
MAC HOME Journal Award
WINDOWS MAGAZINE 1995 WIN 100
1994 MAC HOME JOURNAL READERS' CHOICE
Best Technical Support 1994 Consultants Choice Awards Macintosh Consultants Network
MACWORLD 1993 World Class Award Winner
POSITIVE PERFORMER
◆◆◆◆ MacWEEK

THE NAME TO REMEMBER IN MACINTOSH DATA STORAGE

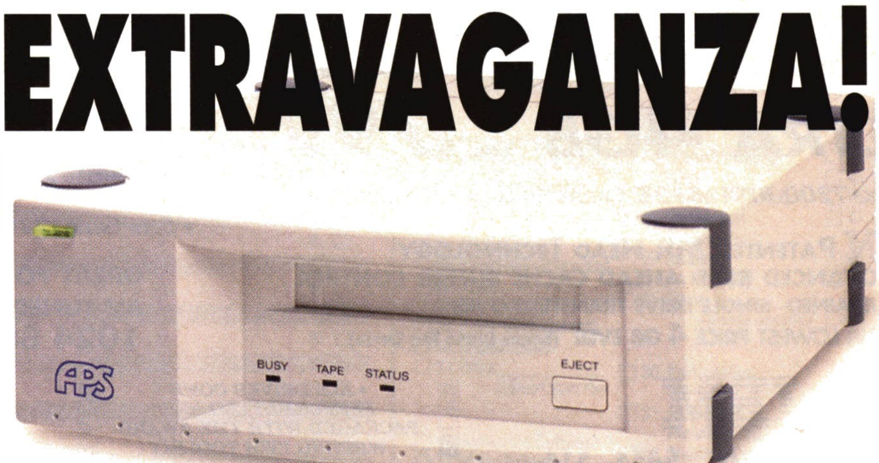
MACWORLD EXPO EXTRAVAGANZA!

LOWEST PRICE EVER FOR DDS-2!

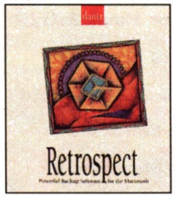
$699.95

External configuration

POWER MATCHED FOR POWER PC



A $139 value – FREE



APS ProDAT®

- ✓ Up to 4GB of uncompressed data on a single 120m tape
- ✓ Reads and writes 60, 90 and 120m DAT tapes
- ✓ 2-year warranty

ICE

When a large uncompressed capacity and high speeds is needed to handle backup chores for applications like digital video or multimedia, the APS ProDAT is the drive for you. Its 4GB capacity on standard 120m DDS-2 DAT tapes and backup speeds of up to 22MB per minute make the APS ProDAT the perfect drive for demanding backup needs. The drive can also use economical 60m and 90m tapes for smaller backup jobs or to exchange tapes with DDS-1 DAT drives.

ULTIMATE CD-R MASTERING SYSTEM

APS CD-R Mastering System 2.0

- ✓ High-performance 4X CD-R drive & high-performance 2GB AV drive
- ✓ Free copy of TOAST CD-ROM Pro – a $500 value
- ✓ Now comes with the new APS MS 2000AV hard drive!

$1999.95

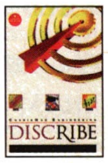
External configuration

POWER MATCHED FOR POWER PC

The ultimate goal when burning CD-R media is a successful burn on the first try, minimizing wasted media, and our new high-performance CD-R Mastering System helps you meet that goal. Combined in a single full-height enclosure, you'll find a high-performance 4X/4X CD-R drive and 2GB of high-performance AV storage.

LOWEST PRICE EVER ON CD-R!

APS CD-R



A $399 value – FREE

- ✓ Uses CD media with 100-year shelf life
- ✓ Random access gives you fast retrieval
- ✓ Supports variable and fixed packet writing

$599.95

External configuration

At the lowest price ever for Sony 2x by 2x CD-R technology, the APS CD-R is a fantastic value for authoring, mastering or backing up to CDs. CD-R media costs less than 2¢ per MB and has an estimated 100-year shelf life. The APS CD-R is based on Sony's CDU-92OS mechanism with its giant 1MB cache buffer, and supports packet writing and all popular CD formats specified in the Orange Book Part II. The APS CD-R comes with a FREE copy of Discribe CD recording software and it can be used with Retrospect as a backup device*.

*CD-R drop in driver extra

UMAX Vista-S6E Scanner with Pro software bundle

MACWORLD SHOW SPECIAL

- Resolution up to 4800 x 4800 with software interpolation
- Includes VistaScan 2 scanning software, Presto! PageManager with OCR and a **full** version of Adobe's PhotoShop.

106391 **$599.95**

Casio QV-30 *plus* Digital Camera

- View images instantly on the 2.5" color screen
- Wide angle (46mm) and telephoto (103mm)
- Stores up to 96 images in memory
- View images on TV
- Record to VCR
- Includes Adobe's PhotoDeluxe™ software

CASIO
LCD DIGITAL CAMERA QV-30

106562 **$699.95**

Polaroid SprintScan 45 Multi-format Film Scanner

- Save time & money by scanning final art in-house
- Compatible formats include 35mm, 2-1/4 x 2-1/4, and 4 x 5
- 24-bit color at up to 2000 x 4000 dpi
- Automatic color correction during scanning

106561 **$8699.95**

MACWORLD EXPO '96 SPECIALS

	REG. PRICE	VALUE PRICE
128MB MO CARTRIDGE	$23.95	$19.95
230MB MO CARTRIDGE	33.95	24.95
1.3GB MO CARTRIDGE	85.95	74.95
2.6GB MO CARTRIDGE	99.95	89.95
MAXELL CLEANING TAPES		
4mm	$12.95	$9.95
8mm	24.95	19.95

maxell

	REG. PRICE	VALUE PRICE
60m DAT	$8.95	$6.95
90m DAT	9.95	7.95
HS8/112	8.95	7.95
HS8/160	16.95	14.95

HS-8/160
HS-8/112
HS-8/160
HS-4/90s
HS-4/120s
HS-4/60s
maxell

VALUE PACKS	YOU SAVE	VALUE PRICE
60m DAT 5PK & CLEANING TAPE	20%	$39.95
90m DAT 5PK & CLEANING TAPE	OVER 15%	44.95
HS8/112 5PK & CLEANING TAPE	OVER 20%	49.95
HS8/112 5PK & CLEANING TAPE	OVER 15%	84.95

Retrospect CD-R drop in driver	$49.95
Retrospect with CD-R driver	99.95

30-DAY MONEY BACK GUARANTEE

30-day money-back guarantee on all APS brand products.

APS CD DRIVES

Model	Features	External
APS CD-8 8X CD-ROM	**8X-SPEED** POWER MATCHED FOR POWER PC · NEW LOW PRICE	$229.95
APS CD-8 Pro Data transfer rates up to 1200KB per second!	**8X-SPEED** POWER MATCHED FOR POWER PC · NEW LOW PRICE	299.95
APS CD-R FREE Discribe CD recording software ($399 value)	**Recordable CD-ROM**	599.95*
APS CD-R Plus FREE TOAST CD-ROM Pro recording software ($500 value)	**Recordable CD-ROM** POWER MATCHED FOR POWER PC	899.95*
APS CD-R Pro FREE TOAST CD-ROM Pro recording software ($500 value)	**4X4 Performance CD-R** POWER MATCHED FOR POWER PC	1499.95**
APS CD-R Mastering System 2.0 4X read/4X write recording engine and a 2GB AV scratch disk	POWER MATCHED FOR POWER PC	1999.95*
APS CD-R Mastering System 4.0 4X read/4X write recording engine and a 4GB AV scratch disk	POWER MATCHED FOR POWER PC	2499.95*

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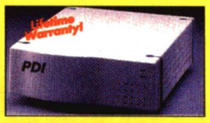
IBM ULTRASTAR ES 2GB ONLY$425

• 8MS SEEK•5400 RPM •512K CACHE BUFFER • 5 YEAR WARRANTY

Internal Configuratio

- VERY RELIABLE 800,000 MTBF
- BEST COST PER MEGABYTE AVAILABLE TODAY
- ADVANCED PRML, MR HEAD TECHNOLOGY



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ULTRA 4GB ONLY$799

Internal Configuratio

•7.5MS SEEK•7200 RPM •512K CACHE BUFFER • 5 YEAR WARRANTY

IBM PATENTED MR HEAD TECHNOLOGY

- ADVANCED READ AHEAD CACHE BUFFER CONTROL
- SUSTAINED SINGLE DRIVE TRANSFERS OVER 5.5 MB/SEC.
- OUR LOWEST PRICE 4 GB EVER (SPECIAL LIMITED TIME OFFER)

AWESOME PERFORMANCE

Quantum ATLAS 1080 ONLY $269

Internal Configuratio

• 8MS SEEK•7200 RPM •1024K CACHE BUFFER • 5 YEAR WARRANTY

- GREAT FOR YOUR DATA INTENSIVE APPLICATIONS
- AV TUNED WITH EMBEDDED SERVO TECHNOLOGY
- 1024 BUFFER PROVIDES FASTER TRANSFER RATES

Lifetime Warranty!
PDI

IBM

2.2 GB *Ultrastar ES* **$455**Int **515**Ext
8.5ms Seek 5400 RPM 1024K Buffer 5 Year Warranty

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810 MB 2.5" *14 MS Seek* $575 External

90 Day Performance Guarantee on all PDI Hard Drives.

LEGENDARY PERFORMANCE!

- INDUSTRY LEADING IBM PATENTED MR HEADS
- IDEAL FOR YOUR MOST INTENSE AV OR DTP
- 1,000,000 MTBF (Mean Time Between Failure)
- 5 YEAR WARRANTY, 24 HOUR REPLACEMENT

AWESOME VALUE!

2.2 GB ULTRA XP
•8 ms Seek•7200 RPM
•512KBuffer •5Yr.War.
•MR Head Technology
All drives come preformatted with FWB for Maximum performance in AV and DTP environments.
$485 Int $545 Ext

4.2 GB ULTRA XP
•8 ms Seek•7200 RPM
•512KBuffer •5Yr.War.
•MR Head Technology
All drives come preformatted with FWB for Maximum performance in AV and DTP environments.
$795 Int $895 Ext

FWB incorporated

• ALL DRIVES COME PREFORMATTED AND PACKAGED WITH THE AWARD WINNING FWB TOOLKIT

MICROPOLIS

AV Tuned Drives Best for Direct to Disk Recording Performance

2.1 GB 8.5 ms Seek	M4221AV 7200 RPM	512K Buffer	$595	$655	5 Year Warranty
4.3 GB 8.5 ms Seek	M3243AV 7200 RPM	512K Buffer	935	995	5 Year Warranty
9.0 GB 11 ms Seek	M1991AV 7200 RPM	512K Buffer	1795	1895	5 Year Warranty

Wide AV Drives

2.1 GB 8.5 ms Seek	M4221WAV 7200 RPM	512K Buffer	$675	$775	5 Year Warrantyu
4.3 GB 8.5 ms Seek	M3243WAV 7200 RPM	512K Buffer	1020	1080	5 Year Warranty
9.0 GB 11ms Seek	M1991WAV 7200 RPM	512K Buffer	1895	1995	5 Year Warranty

AV Drive Special

9 GB 1991AV **$1795** Internal

BARRACUDA Seagate

1080 GB Hawk 2 XL *Ultra SCSI* 11 ms Seek	5400 RPM	512KBuffer	$389	$330	5 Year Warranty
1080 GB ST51080N 11 ms Seek	5400 RPM	512 KBuffer	245	305	5 Year Warranty
2. 4 GB ST32155 *Ultra SCSI* 9 ms Seek	5400 RPM	512K Buffer	535	595	5 Year Warranty
2.5 GB Barracuda 2 8 ms Seek	7200 RPM	512K Buffer	695	755	5Year Warranty
4.3 GB Barracuda 4 8 ms Seek	7200 RPM	1024K Buffer	1025	1085	5 Year Warranty
2.5 GB Fast & Wide Barracuda 8 ms Seek	7200 RPM	512 KBuffer	735	835	5 Year Warranty
4.3 GB Fast & Wide Barracuda 8 ms Seek	7200 RPM	1024K Buffer	1095	1195	5 Year Warranty
9.0 GB Elite 11 ms Seek	5400 RPM	1024 Buffer	1845	1945	5 Year Warranty
9.0 GB Elite Fast & Wide 11 ms Seek	5400 RPM	1024 Buffer	1975	2075	5 Year Warranty

CONNER

MW EDITORS' CHOICE

2.1 GB 8 ms Seek	C2107S 7200 RPM	512K Buffer	645	705	5Year Warranty
4.3 GB	C4207		855	915	

Quantum

			Internal	External
270 MB 14 ms Seek		4500 RPM	$110 128K Buffer	$170 2 Year Warranty
535 MB 9 ms Seek	*Performance !*	5400 RPM	155 512K Buffer	215 5 Year Warranty
850 MB 14 ms Seek	*Value!*	4500 RPM	185 128K Buffer	245 3 Year Warranty
1080 MB 8ms Seek	Atlas	5400 RPM	269 128K Buffer	329 5 Year Warranty
1280 MB 10ms Seek	Fireball II	5400 RPM	255 128K Buffer	315 5 Year Warranty
2.2 GB Saturn 8.5ms Seek		5400 RPM	445 512K Buffer	505 5 Year Warranty
2.0 GB Atlas 8ms Seek		7200 RPM	595 1024K Buffer	655 5 Year Warranty
4200 MB 8.6 ms Seek	Grand Prix	7200 RPM	875 512K Buffer	935 5 Year Warranty
4.3 GB Atlas 7.9ms Seek		7200 RPM	875 2048K Buffer	935 5 Year Warranty

Fast & Wide SCSI AV Drives

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4.3 GB ATLAS 7.9ms Seek	7200 RPM	935 2048K Buffer	1035 5 Year Warranty

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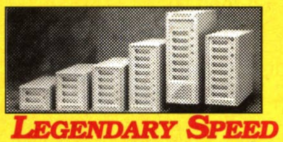

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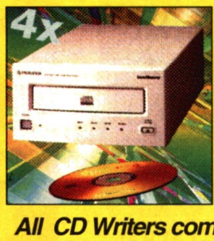

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Capacity	*Model*	*Media*	*Int.*	*Ext.*
2-5 GB	8205XL	8mm	$1395	$1485
14 GB	8700	8mm	$1419	$1479

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72 PIN MEMORY

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32 MB 70/60NS	$249/253

168 PIN DIMMS

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32 MB	60/NS	$279
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4MB	$95	$155	
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24MB	$522		$522
32MB	$599		$599
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48MB			$CALL

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Capacity	*Model*	*External*
88 MB	SQ5110C	$295
135MB	SQEZ135	195
200 MB	SQ5200	325
270 MB	SQ3270	295

Capacity	
44 MB	$38
88 MB	42
135 MB	19
200 MB	66
270 MB	54
135 MB	17
230 MB	28

iomega

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Jaz Cartridges....................	$97
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  ☐ 01. Yes ☐ 02. No

1 What is your organization's primary business activity at this *entire* location?

(Select one only) Write Answer Here ➡ ☐

Non-Computer Related
01. Graphic Arts
02. Publishing
03. Advertising, Public Relations, Promotion
04. Digital Media Development
05. Entertainment/Broadcast
06. Commercial Printer
07. Service Bureau/Pre-Press
08. Aerospace
09. Architecture, Engineering
10. Telecommunications
11. Government
12. Manufacturing
13. Education: College/University/Trade
14. Education: High School/Elementary
15. Finance: Banking, Accounting, Insurance, Real Estate, Legal
16. Health, Medical
17. Non-Computer Retailer, Wholesaler, Distributor
18. Research and Development
19. Agriculture, Mining, Construction, Oil
20. Transportation, Utilities

Computer Related
22. Manufacturer (Computers, Software, Peripherals)
23. VAR, VAD, Systems/Network Integrator
24. Retailer/Distributor
25. Systems House/Data Processing Service
26. Computer Consultant
27. Other Businesses and Services
99. Other__________ (please specify)

2 What is your job function?

(Select one only) Write Answer Here ➡ ☐

A. Networking/Data Communications
B. MIS/DP/Information Systems
C. Systems Engineering
D. Internet/WWW Site Development
E. Telecommunications
F. Graphic Arts/Design
G. Production/Pre-Press
H. Video Production
I. Audio Production
J. Communications/Publishing/Public Relations/Advertising
K. Engineering/Architecture
L. Science/Research & Development
M. Education/Training/Development
N. Manufacturing/Operations/Production/Quality Control
O. Administration/Management/Personnel
P. Accounting/Finance/Legal
Q. Sales/Marketing
R. Purchasing
S. Consulting
Z. Other__________ (please specify)

3 Which of the following brands of systems and/or applications software do you have installed at this *entire* location? (Check all that apply)

Operating Systems
☐ 01. System 7 or higher
☐ 02. Unix/Xenix/AUX/AIX
☐ 03. Windows 3.x
☐ 04. Windows NT
☐ 05. Windows 95
☐ 06. NeXTStep
☐ 07. Solaris
☐ 08. Other__________ (please specify)

Network Operating Systems
☐ 10. Novell NetWare
☐ 11. Unix/NFS
☐ 12. Banyan VINES
☐ 13. AppleShare
☐ 14. DEC PathWorks
☐ 15. Other__________ (please specify)

Groupware
☐ 16. Lotus Notes
☐ 17. Windows for Workgroups
☐ 18. FirstClass
☐ 19. Novell GroupWise
☐ 20. Other__________ (please specify)

Database Engines
☐ 22. FileMaker
☐ 23. Oracle
☐ 24. Sybase SQL Server
☐ 25. Ingres
☐ 26. Informix
☐ 27. 4D Server
☐ 28. DB2
☐ 29. Other__________ (please specify)

On-Line Services
☐ 31. America Online
☐ 32. CompuServe
☐ 33. Prodigy
☐ 34. Internet
☐ 35. Other__________ (please specify)

Internet Services
☐ 37. NetCom
☐ 38. EarthLink
☐ 39. PSI
☐ 40. BEST
☐ 41. AT&T Worldnet
☐ 42. BBN
☐ 43. GNN
☐ 44. Other__________ (please specify)

4 Please indicate the quantities of the computers currently installed and indicate the computers planned for purchase in one year at this *entire* location.

(Write in accurate quantities for all that apply.)	Currently Installed (Quantity)	PLAN TO PURCHASE
Macintosh/Compatible		
Apple Power Mac 8500, 9500	1.	1. ☐
Apple Power Mac 7500, 7600	2.	2. ☐
Apple Power Mac 7200	3.	3. ☐
Apple Nu-Bus Based Power Mac	4.	4. ☐
Power Computing	5.	5. ☐
Daystar Digital	6.	6. ☐
Other Power Mac Compatible	7.	7. ☐
Macintosh Quadra, Centris	8.	8. ☐
Macintosh Performa	9.	9. ☐
Non PPC Mac PowerBook/Duo	10.	10. ☐
PPC Mac PowerBook/Duo	11.	11. ☐
Macintosh Other (II, LC, SE, etc…)	12.	12. ☐
Other Mac Compatible	13.	13. ☐
Other Desktops		
Intel/Compatible Desktop/Laptop/Notebook	14.	14. ☐
PowerPC (Non-Mac Compatible)	15.	15. ☐
Workstation (SPARC, MIPS, HP/Apollo, etc.)	16.	16. ☐
Other Microcomputers	17.	17. ☐

USE NUMBERS ONLY

5A How many servers are installed at this *entire* location? (Use numbers only)

5B How many LANs are installed at this *entire* location? (Use numbers only)

5C How many Macintoshes are connected to the LANs indicated in Question 5B above?

(Use numbers only)

6A Does this location retail, resell, distribute, or function as a professional consultant for Macintosh-related products or services?

☐ YES
☐ NO

6B If you indicated YES in question 6A above, which of the following product or service categories are sold, resold, distributed or recommended at this *entire* location? (Check all that apply)

☐ 01. Host Systems (Mainframes/Minis)
☐ 02. Desktops/Portables (Micros/Workstations)
☐ 03. Networking Products (include Servers)
☐ 04. Peripheral Equipment
☐ 05. Software Products
☐ 06. Service/Support

7A Which of the following Macintosh-related products do you specify, recommend, buy or approve the purchase of? (Check all that apply)

Systems
☐ 01. Apple Macintoshes
☐ 02. Mac Compatibles
☐ 03. Intel Compatible Micros
☐ 04. Intel Servers
☐ 05. Workstations
☐ 06. Minis/Mainframes
☐ 07. PDAs
☐ 08. Pen-Based Computers

Networking/Internet
☐ 10. Internet Servers/Web Servers
☐ 11. Mac Compatible
☐ 12. Intel Compatible
☐ 13. Workstations
☐ 14. LANs
☐ 15. WANs
☐ 16. Mac to PC Links
☐ 17. Mac to Mini/Mainframe Links
☐ 18. Mac to Unix Workstation Links
☐ 19. Modems
☐ 20. Communication/Network Software
☐ 21. Bridges/Routers/Gateways
☐ 22. Hubs
☐ 23. NICS

Printers
☐ 25. Laser
☐ 26. Color Laser
☐ 27. InkJet
☐ 28. Image Setter
☐ 29. Dye Sub
☐ 30. Thermal Wax
☐ 31. Plotter

Image Input
☐ 33. Digital Camera
☐ 34. Flatbed Scanners
☐ 35. Handheld Scanners
☐ 36. Slide Scanners
☐ 37. Drum Scanners

Displays
☐ 39. 14 –17 inch
☐ 40. 19 + inch

☐ 41. Presentation Systems

Peripherals
☐ 43. UPS
☐ 44. External Speakers
☐ 45. Input Devices
☐ 46. Video Deck
☐ 47. MIDI

Storage
☐ 49. Removable Storage
☐ 50. Magneto Optical
☐ 51. RAID
☐ 52. Hard Drive 1 Gig +
☐ 53. Hard Drive < 1 Gig
☐ 54. CD Recorder

Add-In Boards
☐ 56. Memory Boards
☐ 57. Display Boards
☐ 58. Accelerator Boards
☐ 59. Video Capture/Compression

99. ☐ None of the above

Indicate additional individuals at this location who might qualify for a FREE subscription to MacWEEK:

Name ____________________ Title __________

Name ____________________ Title __________

Name ____________________ Title __________

7B Which of the following systems and/or applications software do you specify, recommend, buy or approve the purchase of? (Check all that apply)

Graphic Arts/Publishing
☐ 01. Desktop Publishing
☐ 02. Electronic Publishing
☐ 03. Painting/Drawing Programs
☐ 04. Photo Retouching
☐ 05. Page Layout
☐ 06. Illustration Programs
☐ 07. Fonts
☐ 08. Pre-Press
☐ 09. Color Management
☐ 10. Digital Video
☐ 11. Other__________ (please specify)

Multimedia
☐ 13. Authoring Software
☐ 14. Video Editing
☐ 15. Sound Editing
☐ 16. Music Composition/Editing
☐ 17. Animation
☐ 18. Clip Media (Sound and Art)
☐ 19. Other__________ (please specify)

Internet/WWW
☐ 21. Browsers
☐ 22. HTML Authoring Tools
☐ 23. VRML Authoring Tools
☐ 24. Web Publishing Tools
☐ 25. Firewalls/Security
☐ 26. Transaction Processing
☐ 27. Database Connectivity
☐ 28. Other__________ (please specify)

Presentation Graphics
☐ 30. Presentation Software
☐ 31. Multimedia Presentations
☐ 32. Charting Program
☐ 33. Other__________ (please specify)

Design/Engineering
☐ 35. CAD/CAM
☐ 36. 2/D - 3/D Modeling
☐ 37. Simulation
☐ 38. Other__________ (please specify)

Business Applications
☐ 40. Word Processing
☐ 41. Spreadsheets
☐ 42. Databases
☐ 43. Project Management
☐ 44. Accounting/Payroll
☐ 45. Groupware
☐ 46. Desktop Video Conf.
☐ 47. Document Management
☐ 48. Mapping/GIS
☐ 49. Pen-Based Applications
☐ 50. Other__________ (please specify)

Systems Management
☐ 52. Operating Systems
☐ 53. Utilities
☐ 54. Applications Development
☐ 55. CASE
☐ 56. Programming Languages
☐ 57. Compilers
☐ 58. SQL Applications
☐ 59. Client Server Applications
☐ 60. Other__________ (please specify)

99. ☐ None of the above

8 In which ways do the Macintoshes at your location connect to the Internet? (Check all that apply)

☐ 01. Analog Modems
☐ 02. ISDN
☐ 03. T-1/T-3/Fractional T-1
☐ 04. Cable Modems
☐ 05. ATM
☐ 06. Wireless Modems
☐ 99. Other__________ (please specify)

9 If you indicated purchase involvement for computers, computer products or services in Question 7A or Question 7B, for how many Macintoshes do you have this involvement? (Select one only) Write Answer Here ➡ ☐

01. 2000+
02. 1000-1999
03. 500-999
04. 100-499
05. 50-99
06. 20-49
07. 10-19
08. 5-9
09. 1-4
99. None

10 For what applications are the Macintoshes at your location used? (Check all that apply)

☐ 01. Graphic Arts/Publishing
☐ 02. Presentation Graphics
☐ 03. Multimedia
☐ 04. Design/Engineering
☐ 05. Business Applications
☐ 06. Systems Management
☐ 07. Internet Development
☐ 99. Other__________ (please specify)

11 Over the course of one year, do you specify, recommend, buy, sell, resell or approve the purchase of host systems, desktops, networking products, peripheral equipment and/or software worth: (Check one box per column)

	Host Systems (Mainframe/Minis)	Desktop/Portables (Micros/Workstations)	Networking Products (include Servers)	Peripheral Equipment	Software Products	Service/Support
$10,000,000 or more	1. ☐	14. ☐	27. ☐	40. ☐	53. ☐	66. ☐
$5,000,000 to $9,999,999	2. ☐	15. ☐	28. ☐	41. ☐	54. ☐	67. ☐
$2,500,000 to $4,999,999	3. ☐	16. ☐	29. ☐	42. ☐	55. ☐	68. ☐
$1,000,000 to $2,499,999	4. ☐	17. ☐	30. ☐	43. ☐	56. ☐	69. ☐
$600,000 to $999,999	5. ☐	18. ☐	31. ☐	44. ☐	57. ☐	70. ☐
$400,000 to $599,999	6. ☐	19. ☐	32. ☐	45. ☐	58. ☐	71. ☐
$200,000 to $399,999	7. ☐	20. ☐	33. ☐	46. ☐	59. ☐	72. ☐
$100,000 to $199,999	8. ☐	21. ☐	34. ☐	47. ☐	60. ☐	73. ☐
$50,000 to $99,999	9. ☐	22. ☐	35. ☐	48. ☐	61. ☐	74. ☐
$25,000 to $49,999	10. ☐	23. ☐	36. ☐	49. ☐	62. ☐	75. ☐
$10,000 to $24,999	11. ☐	24. ☐	37. ☐	50. ☐	63. ☐	76. ☐
Less than $10,000	12. ☐	25. ☐	38. ☐	51. ☐	64. ☐	77. ☐
None of the above	☐ 13.	☐ 26.	☐ 39.	☐ 52.	☐ 65.	☐ 78.

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Title ____________________ Date ___/___/___

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"Your next option is to locate...highly visible digital video suppliers like Direct Connections." **NEWMEDIA June '95**
"This array is the one to beat." **Ken Grey** Writer for WIRED, Computer User, MovieMaker, Computer Video, and Digital Video Magazine.
"Stick with a vendor such as Direct Connections that understands how to prepare a RAID for desktop video." **MacWorld April '95**

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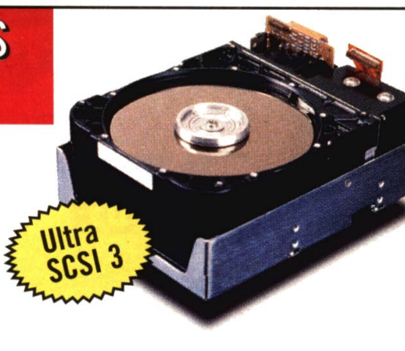

Seagate Hawk 2XL

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- Ultra SCSI 3
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- Embedded Servo
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- $ 620

5 YEAR WARRANTY

BRAND/MODEL	CAPACITY		ACCESS	RPM	INTERNAL	EXTERNAL
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HITACHI 2.5" IDE***	1.0GIG		14MS	5400	$ 425	
Seagate ST51080N ***	1.2GIG	LP	12.5MS	5400		$ 360
Seagate Hawk 2XL***	1.2GIG	LP	9MS	5400		$ 469
Conner CFP2107S	2.1GIG	LP	8MS	7200	$ 615	$ 685
Seagate 32155N	2.1GIG	Ultra SCSI	9MS	5400		$ 620
Seagate Barracuda 2	2.5GIG	LP	8MS	7200		$ 795
Seagate Barracuda 2W	2.5GIG	LP	8MS	7200		$ 865
Fujitsu M2934S	4.2GIG	MR	8MS	7200	$ 975	$ 1045
Fujitsu M2934Wide	4.2GIG	MR	8MS	7200	$ 975	$ 1045
Seagate Barracuda 4	4.1GIG		8MS	7200		$ 1205
Seagate Barracuda 4W	4.1GIG		8MS	7200		$ 1325
Seagate Hawk4	4.3GIG		9MS	5400		$ 999
Conner CFP4207S	4.2GIG		9MS	7200	$ 949	$ 1019
Conner CFP4207wide	4.2GIG		9MS	7200	$ 1099	$ 1199
Quantum Atlas	4.3GIG		8.6MS	7200	$ 999	$ 1069
Seagate Elite 9	9.0GIG		11MS	5400		$ 2195
Seagate Elite 9W	9.0GIG		11MS	5400		$ 2395

CD RECORDERS/PLAYERS

Ricoh 2 speed recorder / 4 speed player

1420

2MB Buffer
$999
RICOH
COMPACT DISC RECORDABLE

The only CD Recorder in the industry with 2MB of Buffer to eliminate under-runs ! This is the Recorder that the Audio Community is using. You should too!

Includes Free software

MW ★★★★

Yamaha 4 speed Recorder / 4 Player	External	$ 1299
Yamaha 2 speed Recorder / 4 speed Player	External	$ 849
Yamaha 2x 4 Recorder with built in hard drive	External	$ 1329
Ricoh 2x 4 Recorder 512K buffer	External	$ 825
Pioneer 4 speed 18-Disc CD-ROM Changer	External	$ 1499
Philips 8 x speed CD Player	External	$ 325
Nakimichi 8 x 4-Disc CD-ROM Changer	External	$ 599
Panasonic 4x CD/650MB Optical	External	$ 499
150 Slot Jukebox with 4 players, all platforms	External	$ 15900
150 Slot Jukebox w/ CD Recording, all platforms	External	$ 17500
CD Duplicator. Just hit the button, walk away.	External	$ 5999

CD Network Archiving, Libraries, and Recording. All Platforms.

"Stick with a vendor such as Direct Connections that understands how to prepare a RAID for desktop video." MacWorld April '95

RAID SYSTEMS

FAST DESKTOP OR SERVER

- 28mb/sec sustained sequential Writes.

Tested with MacBench on PowerMac 9500.

12GIG with 2 PCI accelerator cards $ 6999

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16 GIG Fast and Wide RAID	$ 5570
28 GIG Fast and Wide RAID	$ 9199
40 GIG Fast and Wide RAID	$ 14599

Atto Silicon Express IV	$ 755
Atto Express PCI MC	$ 695
Atto Express PCI SC	$ 315
Adaptec AHA-2940UW	$ 295
Adaptec AHA-3940UW	$ 355
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RATED AWESOME NEWMEDIA MAGAZINE

MEDIA 100 TARGA 2000 radius

OPTICAL DRIVES

$1959
NEW
KOMAG
DISK

2.6GIG Sony Optical for $1959 external including all cabling, and software!!

CAPACITY	MODEL	EXTERNAL
230MB	Fujitsu	$ 499
2.6GB	Hitachi	$ 1895
2.6GB	Sony 1MB cache	$ 1959
2.6GB	Sony 4MB cache	$ 2159
26GB	Sony Jukebox	$ 4695
52GB	Sony Jukebox	$ 6295

1 YEAR WARRANTY

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We are the tape-backup Experts

2 YEAR WARRANTY

With 2.5MB/sec sustained transfer, the DLT2000XT is perfect for digital video or pre-press with large data files.

All systems include cabling, and Retrospect software.

CAPACITY	MODEL	MEDIA	INTERNAL	EXTERNAL
-4GIG	Tandberg	1/4"	$ 469	$ 539
-8GIG	DC8000	4MM	$ 839	$ 899
-8GIG	Sony 7000 DDS-2* MW ★★★★	4MM	$ 929	$ 999
-14GIG	Exabyte 8505XL	8MM	$ 2065	$ 2125
-14GIG	Exabyte 8700	8MM		$ 1575
-40GIG	Exabyte Mammoth	8MM		$ 5499
-30GIG	DLT2000XT	1/2"		$ 2999
-40GIG	DLT4000 MW ★★★★	1/2"		$ 4599
-140GIG	Exabyte-10h Library	8MM		$ 4999
-200GIG	DLT4500 Loader	1/2"		$ 8799

DIRECT CONNECTIONS 7668 Executive Drive Eden Prairie, MN 55344 Gov't, Corp, and Univ. P.O's accepted. DISCOVER NOVUS VISA MasterCard *1YR Warranty No 30 day money back on media and software.

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iomega

Zip 100MB Drive

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Includes One Free Cartridge

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-$50.00*
$149.95

100 drive zip

* Manufacturers Mail-in Rebate (ends 9/15/96)

I044 1010 **Zip Drive** with One 100MB Cartridge .... $199.95-$50=$149.95

Jaz Cartridge (1.0GB)	
I040 1015 **1 Pack**	$124.95
I040 1017 **5 Pack**	$499.95
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I040 1006 **1 Pack**	$19.95
I040 1011 **3 Pack**	$49.95
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Jaz 1.0GB Drive

$499.95 I044 1014

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In Stock

1GB drive jaz

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SyQuest® REMOVABLE TECHNOLOGY

EZ Drive™

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MCD540 540MB REMOVABLE

Backward Compatible with SyQuest 270 Media

$299 C104 2500

FEATURES AND SPECIFICATIONS

- 10MS access time
- 5MB/sec. transfer rate
- 2 year drive warranty
- 5 year cartridge warranty
- Double door on drive to prevent contamination
- Motorized eject system
- Auto-switching power supply
- 30 Day Money Back Guarantee

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Manufacturer's 2 Year Warranty

C104 2500	**ClubMac MCD540 540MB Removable Drive** w/o cartridge	$299
N220 1005	**ClubMac MCD540 540MB Removable Media**	$59

SyQuest Media

Part Number	Media	Qty 1	Qty 10	Qty 20
S198 1010	44MB	$40ea	$39.50ea	$39ea
S198 1011	88MB	$44ea	$43.50ea	$43ea
S198 1012	200MB	$69ea	$68ea	$67ea
S198 1013	105MB	$35ea	$34.50ea	$34ea
S198 1014	270MB	$57ea	$56ea	$55ea
S198 2010	EZ135MB	$24.95ea	$23.95ea	$23ea
S198 2011	EZ230MB	$30ea	$29.50ea	$29ea

SyQuest 5 YEAR Warranty

$35
$69
$44
$24.95
$57
$40
$30

CLUBMAC HARD DRIVES

Quantum

ATLAS 4.3GB

BEST BUY

7200 RPM 1024K CACHE

Internal Atlas C104 0005

$899

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Capacity	Model	Part No.	Internal	Part No.	External
2150MB	Atlas 8ms	C104 0004	$639	C104 0054	$699
4280MB	Atlas 8ms	C104 0005	$899	C104 0055	$959

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1700MB	Sirocco IDE	C104 0009	$289
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Quantum IDE hard drives are compatible with Quadra 630, Performa 5200/5300, and Performa 6200/6300 Series

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20MB/sec Data Transfer Rate

2150MB	Atlas XP32150SW	C104 0103	$699	C104 0152	$799
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ClubMac brings you the 540MB Deskstar SCSI drive from IBM. With great performance and a THREE year warranty, this drive is an outstanding value.

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- 4500 RPM
- 128K Buffer
- 12ms Access Time

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Manufacturer's 3 Year Warranty

	Internal	Price	External	Price
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ClubMac® Tape Back-Up Drives

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C104 1303	**ClubMac 4-8GB DDS-2 DAT Drive**	$879
C104 1302	**ClubMac 4-8GB Performance DAT Drive**	$1079
S100 1043	**Sony QW3080XLF QIC/WIDE 2-4GB Cartridge**	$29
V010 1018	**Verbatim 90M 4mm DAT Cartridge** 2-4GB	$9

DDS-2 DAT Drive

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- Copy your data to a mounted DAT using the Finder
- Interchange your data with any DAT drive
- Store & backup your data incrementally.

$99* 0029 1002

* with the purchase of a Tape Drive

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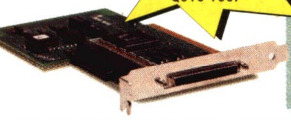
qlogic™ Corp.



$229 Q010 1007

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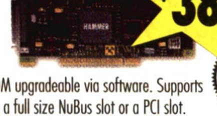

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ClubMac® 4.4X

Features:
600KB/sec data transfer
190ms avg access time
Caddy-less design

$149 C104 1700

ClubMac®		Access Time	Trans Rate	
C104 1750	ClubMac 8X-Speed CD-ROM Drive	140ms	1200k/sec	$269
C104 1700	ClubMac 4.4X-Speed CD-ROM Drive	140ms	600k/sec	$149

NEC		Access Time	Trans Rate	
N024 5501	MultiSpin 8Xe CD-ROM Reader	130ms	1200k/sec	$449
N024 1070	MultiSpin 4Xc 7 Disc Changer	350ms	600k/sec	$339
N024 1011	MultiSpin 3Xp plus Portable CD-ROM	240ms	500k/sec	$349

CD RECORDABLE DRIVES

YAMAHA® 4X CD Recorder

NEW LOW PRICE

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Manufacturer's 1 Year Warranty

Y010 1002 Yamaha 4X CD Recorder $1299
w/Toast CD ROM Pro 3.0 CD Mastering software

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Record full-screen, full-motion, 60 field-per-second digital video input and output to and from your hard disk. VideoVision Studio delivers unsurpassed real-time hardware-accelerated JPEG compression and decompression of each individual video frame, so you can perform non-linear, frame-accurate digital video editing. VideoVision Studio also digitizes stereo audio simultaneously and stores it with the video for easier input and editing.

Radius VideoVision Studio (R013 1018)	$1999
Radius VideoVision Studio for PCI-Based Macintosh (R013 1079)	$3899

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* Monitor Sold Separately
Includes: Mouse and Keyboard.

R012 1005 **Radius 81/110** 110MHZ Power PC 601+, 8MB RAM, 4x CD-ROM $1399*

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Starting at $2999*

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PRINTERS

EPSON Stylus COLOR Pro

E047 1019

$459

- Incredible 720 dpi color printing, optimized with special coated paper
- Text print speed up to 3ppm, color 1ppm
- True black laser quality text
- Pantone Matching
- Postscript upgradeable
- Cross-platform compatibility
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2 WARRANTY

E047 1019	**Epson Stylus Color Pro Printer**	$459
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HP LaserJet 5MP

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- 600 x 600 dpi laser printing with HP Resolution Enhancement technology plus 120 levels of gray
- 6 ppm print speed, 20-MHz ColdFire processor
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- Adobe PostScript Level 2 with 35 scale typefaces
- Ports for sharing and wireless printing
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POSTSCRIPT®

H047 1030 **HP LaserJet 5MP Printer** $1045

SCANNERS

AGFA Arcus II

A055 1001

$1995

Manufacturer's 1 Year Warranty

- Single pass, High speed scanner
- 600 x 1200 dpi resolution
- 36-bit color scanning
- Transparency Module
- Includes: Adobe Photoshop, AGFA FotoLook scanning software Fotofune LE for color management

A055 1001	**AGFA Arcus II Desktop Professional Scanner**	$1995
A055 1011	**AGFA StudioScan IIsi**	$699

EPSON ES1200C Pro

- 600 dpi optical resolution, and up to 4800 dpi (via interpolation)
- 30-bit color scanning
- Pro Package includes: Adobe Photoshop, Scantastic, Kai's PowerTools, SCSI cable

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2 WARRANTY

E045 1003

E045 1003	**ES1200C Pro-MAC Color Scanner Full Package**	$1179
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E045 1013	**ES1000C LE-MAC Color Scanner**	$595

Powerlook II

UMAX
The Magic of Color™

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- 600 dpi
- 36-bit color capture
- Transparency adapter
- Includes Adobe Photoshop 3.0, WordLinx OCR, Kai's PowerTools SE, PowerPhotos CD

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U010 1052

U010 1052	**Powerlook II** 36-bit color capture, Transparency adapter	$2295
U010 1054	**Vista S12 Mac Pro** 33-bit color capture, 600 x 122 dpi, Full Adobe Photoshop	$899

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The Easiest way to get paper into your Mac.

$269

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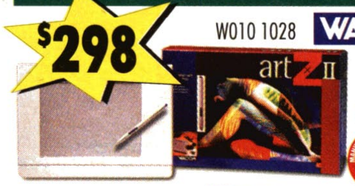
ARTZ II 6"x8" GRAPHICS TABLET



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Upgradeable to 33.6 Kbps

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- Includes most-popular Web browser and Internet service access
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- Award-winning GlobalFax 2.5 software is included
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G050 1022 **TelePort Platinum Internet Edition** 28.8 kbps Fax/Modem ... $169*

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28,8 v.34 External Fax/Modem

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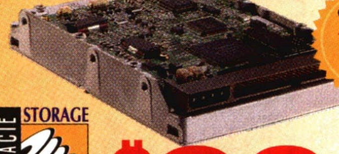

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2.1GB Quantum Fireball TM	5,400 rpm 5 yr. warr.	$479
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CD-Recorders	
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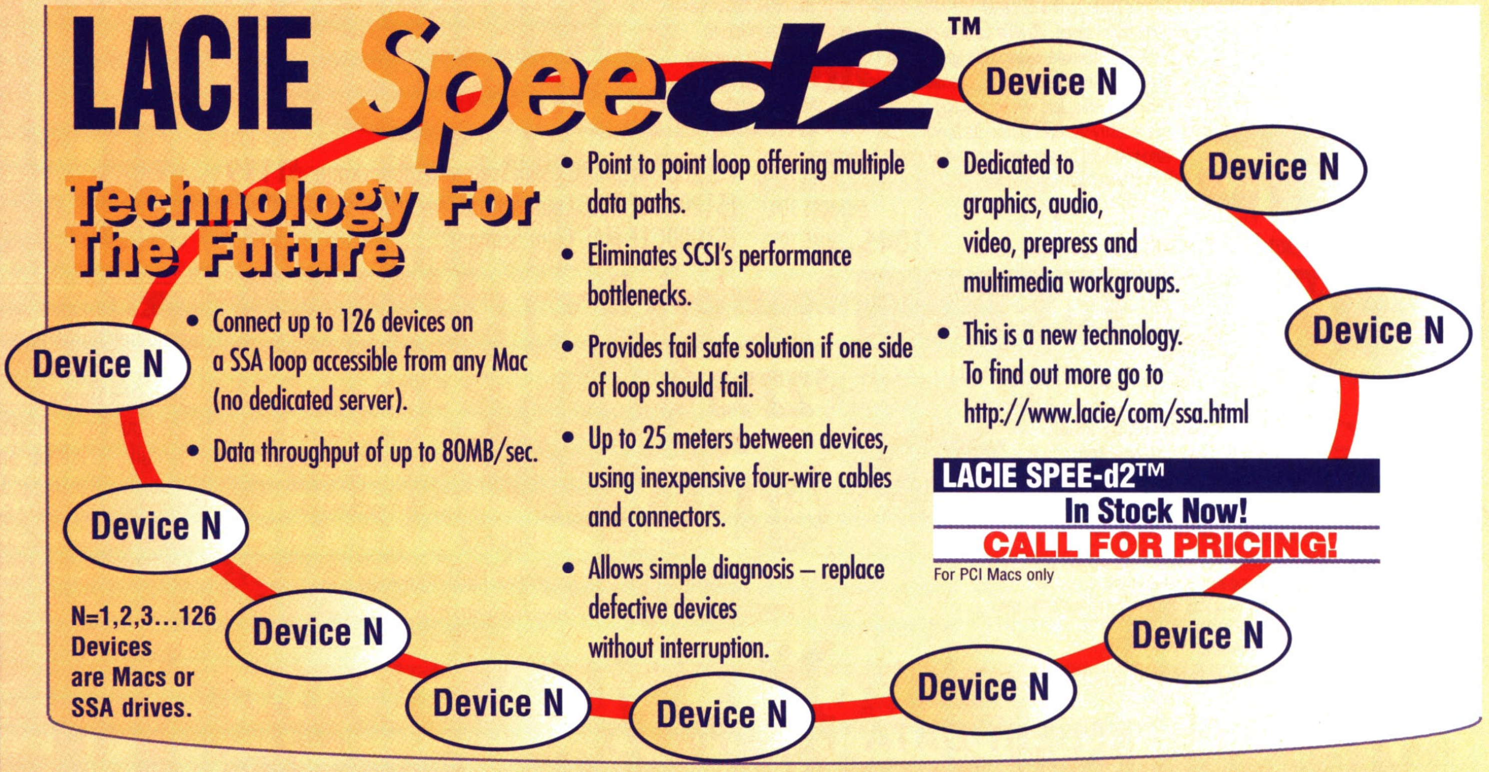

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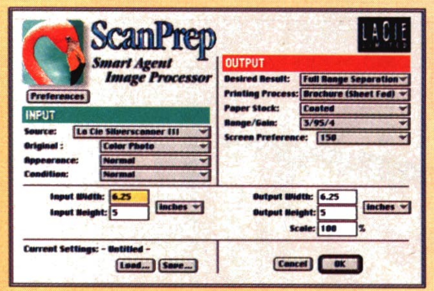
AWARD-WINNING COLOR

Compare these features:

- Color previews in seconds.
- Scans in under a minute.
- The industry's leading scanning software.

"ScanPrep is an essential application if you own a scanner… the sort of program that has to be seen to be believed."
Ben Long – MacWeek
Highest Possible Rating ♦♦♦♦♦

"No matter what acquired plug-in you get if you use Photoshop, you'll also want to buy a copy of ScanPrep."
– MacUser
Highest Possible Rating


ScanPrep
Smart Agent Image Processor
Preferences
INPUT
Source: La Cie Silverscanner III
Original : Color Photo
Appearance: Normal
Condition: Normal
OUTPUT
Desired Result: Full Range Separation
Printing Process: Brochure (Sheet Fed)
Paper Stock: Coated
Range/Gain: 3/95/4
Screen Preference: 150
Input Width: 6.25
Input Height: 5
inches
Output Width: 6.25
Output Height: 5
inches
Scale: 100 %
Current Settings: – Untitled –

FREE with all La Cie scanners, ScanPrep automates Photoshop's* image processing tools, individually preparing each image for printing right before your eyes. Simply describe the project to ScanPrep and scan the base image. ScanPrep yields professional prepress results, quickly and easily.

ScanPrep provides automatic adjustment of picture contrast and color saturation. Even when the original is lacking in contrast or saturation, it corrects the problem without human intervention.

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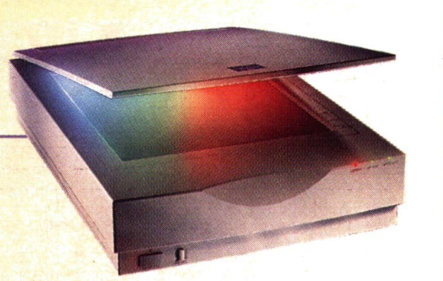
24 bit color, 300 x 600 dpi
interpolated to 1200 dpi.
- ▲ Silverscan
- ▲ ScanPrep
- ▲ Omnipage Lite OCR

$499



Silverscanner PRO with Photoshop LE

24 bit color, 300 x 600 dpi
interpolated up to 1200 dpi.
- ▲ Photoshop LE
- ▲ ScanPrep ▲ Silverscan
- ▲ Omnipage Lite OCR

$599

Silverscanner DTP

30 bit color, 400 x 800 dpi
interpolated to 3200 dpi.
- ▲ Silverscan
- ▲ ScanPrep
- ▲ Omnipage Lite OCR

$799

½

MacUser
BEST BUY

Silverscanner DTP with Photoshop LE

30 bit color, 400 x 800 dpi
interpolated up to 3200 dpi.
- ▲ Photoshop LE
- ▲ ScanPrep ▲ Silverscan
- ▲ Omnipage Lite OCR

$889

Silverscanner III

30 bit color, 600 x 1200 dpi
interpolated up to 4800 dpi.
- ▲ Silverscan
- ▲ ScanPrep
- ▲ Omnipage Lite OCR

$1499

Silverscanner III with Photoshop Full

30 bit color, 600 x 1200 dpi
interpolated up to 4800 dpi.
- ▲ Photoshop (Full Edition)
- ▲ ScanPrep ▲ Silverscan
- ▲ Omnipage Lite OCR

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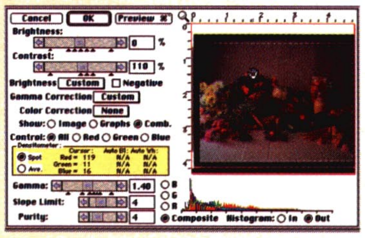
Transparency Adapter (DTP and III)	$799

No matter which software bundle you choose, you'll also receive Silverscans' award-winning scanning software giving you professional scans.

* Full version only.


Brightness: 0 %
Contrast: 110 %
Brightness: Custom ☐ Negative
Gamma Correction: Custom
Color Correction: None
Show: ○ Image ○ Graphs ● Comb.
Control: ● All ○ Red ○ Green ○ Blue
Densitometer:
● Spot ○ Ave.

Cursor :	Auto Bl:	Auto Wh:
Red = 119	N/A	N/A
Green = 11	N/A	N/A
Blue = 16	N/A	N/A

Gamma: 1.40
Slope Limit: 4
Purity: 4
○ B ○ G ○ R ● Composite Histogram: ○ In ● Out

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Syquest SQ2000 200MB	$62 ea.	$61 ea.
Syquest SQ105 105MB	$53 ea.	$52 ea.
Syquest EZ135 135MB	$18 ea.	$17 ea.
Syquest EZFlyer 230MB	$30 ea.	$29 ea.
Syquest SQ3270 270MB	$48 ea.	$47 ea.
Optical 128MB	$16 ea.	$15 ea.
Optical 230MB	$21 ea.	$20 ea.
Optical 640MB	$49 ea.	$48 ea.
Optical 1.3GB	$59 ea.	$58 ea.
Optical 2.6GB	$85 ea.	$84 ea.
CD-R 74 650MB		$8.90 ea.
DAT 90m	$9 ea.	$8 ea.
DAT 120m	$24 ea.	$25 ea.
DAT Cleaning Kit	$9 ea.	$8 ea.
DLT 30 30GB	$40 ea.	$39 ea.
DLT 40 40GB	$98 ea.	$97 ea.

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2.1GB Quantum Fireball TM	3 yr. warr.	$659
3.2GB Quantum Fireball TM	3 yr. warr.	$759
3.5" Drives with Mount For use in Tower with a Joule Base.		
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2.1GB Quantum Fireball TM	3 yr. warr.	$659
3.2GB Quantum Fireball TM	3 yr. warr.	$759
4.3GB Quantum Atlas	5 yr. warr.	$1099
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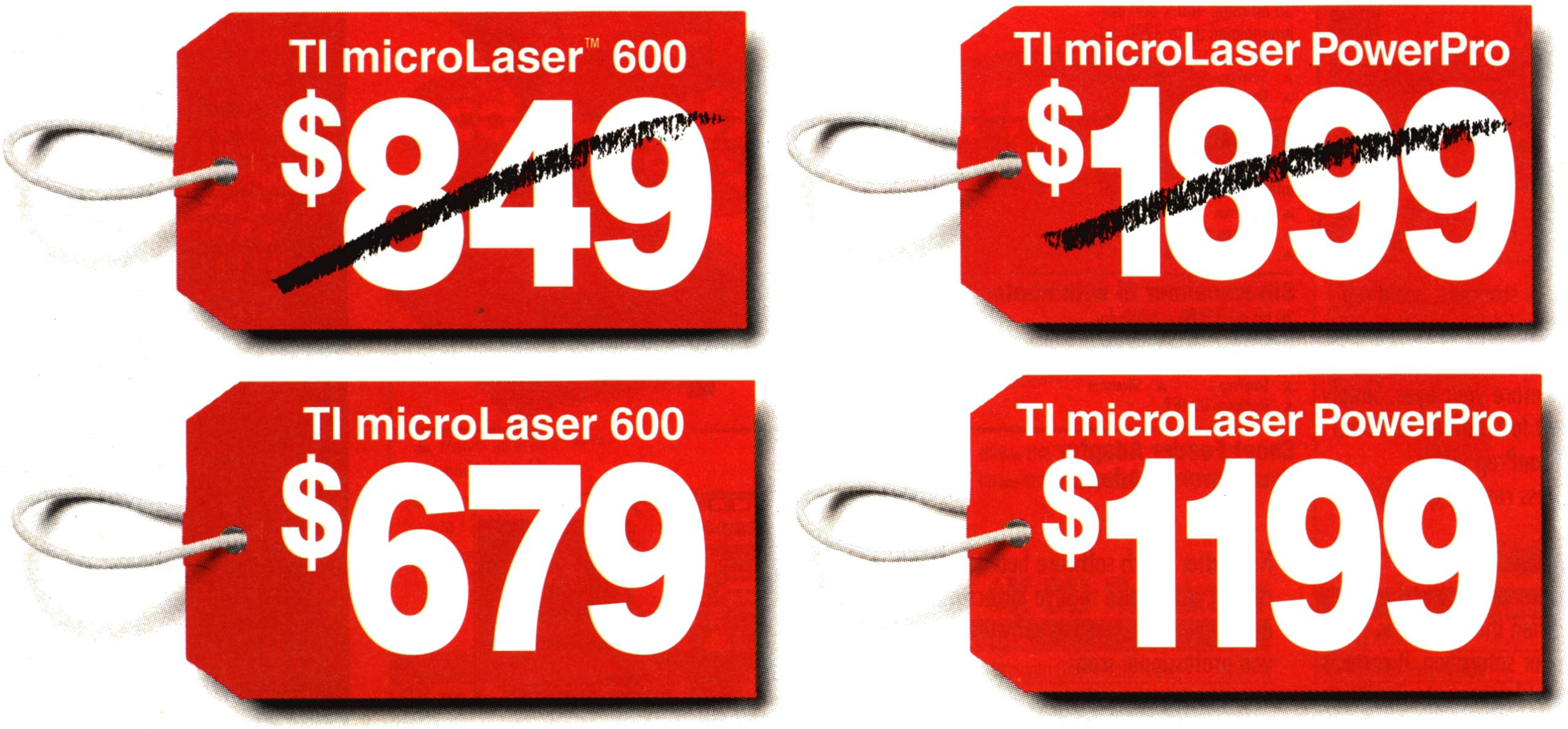

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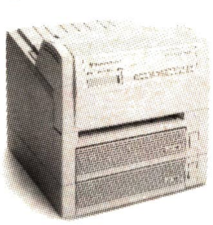

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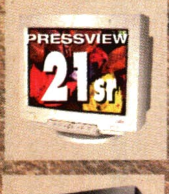
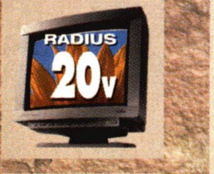


PRECISIONCOLOR 21



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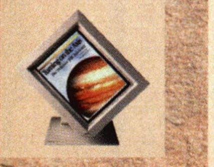

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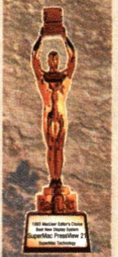

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*DSP Available

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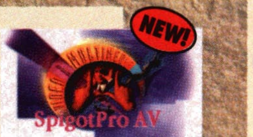

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Radius Pivot Card	SE/30	256	–	–	–
Xceed Color 30hr	SE/30	256	256	256	256
Lapis Color 16	SE/30	Thousands	Thousands	256	256
Lapis Color 24	SE/30	Millions	Millions	256	256
Radius Direct Color/gx	IIsi	Millions	–	–	–
SuperMac Spectrum 8	IIsi	256	256	256	256
SuperMac Spectrum 8.24	IIsi	Millions	256	256	256
Radius FPD Card	Mac SE	Mono	–	–	–
SuperMac Superview	Mac SE	–	–	Mono	–
Radius TPD Interface	Mac SE	–	–	–	Mono
RasterOps 8/LC	LC/PDS	–	–	256	–
SuperMac Spectrum 8	LC/PDS	256	256	256	256
Lapis Color 16 for LC	LC/PDS	Thousands	Thousands	256	256
Micro Conversions 1724	LC/PDS	Millions	Millions	256	256
Lapis Color 24 for LC	LC/PDS	Millions	Millions	256	256
Double Color SX	Nubus	256	256	16	–
RasterOps 708+	Nubus	256	–	256	–
RasterOps 24L	Nubus	Millions	–	–	–
RasterOps 8/LC	Nubus	–	–	256	–
SuperMac Spectrum 8	Nubus	256	256	256	–
Double Color LX	Nubus	256	256	256	256
Radius Direct Color 24	Nubus	–	–	–	Millions
E-machines Futura MX	Nubus	Millions	Millions	Millions	–

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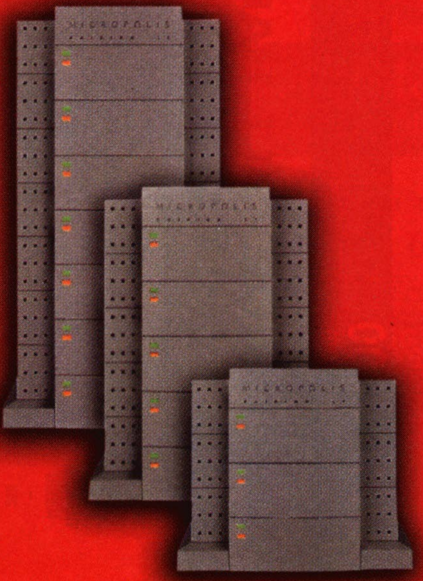

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1.05 GB	DT-51080	Seagate **NEW LOW PRICE!**	10.0 ms	3 yrs	$269	$344
1.05 GB	DT-31230	Seagate **NEW LOW PRICE!**	9.0 ms	5 yrs	$380	$455
2.0 GB	DT-32151	Seagate **ULTRA SCSI!**	9.0 ms	5 yrs	$550	$625
2.0 GB	**DT-4421**	**Micropolis NEW PRODUCT!**	**9.5 ms**	**5 yrs**	$429	$499
2.1 GB	DT-32550	Seagate Barracuda II **NEW LOW PRICE!**	8.0 ms	5 yrs	$725	$800
4.3 GB	DT-14207	Conner **NEW PRODUCT!**	8.0 ms	5 yrs	$950	$1,025
4.3 GB	DT-3243	Micropolis **NEW LOW PRICE!**	8.5 ms	5 yrs	$875	$950
4.3 GB	DT-15230	Seagate Hawk 4 **NEW PRODUCT!**	9.0 ms	5 yrs	$899	$975
4.3 GB	DT-15150	Seagate Barracuda **NEW LOW PRICE!**	8.0 ms	5 yrs	$1,075	$1,175
9.0 GB	DT-1991	Micropolis	12 ms	5 yrs	$1,725	$1,825
9.0 GB	DT-3391	Micropolis **3.5 " 9 GB**	8 ms	5 yrs	$1,899	$1,999
9.0 GB	DT-410800	Seagate Elite 9	11 ms	5 yrs	$1,925	$2,025

AUDIO/VIDEO TUNED DRIVES

Capacity	Model No.	Mechanism	Seek	Warr.	Internal	External
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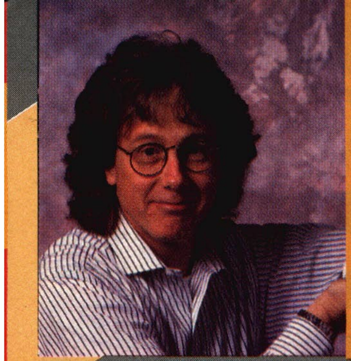

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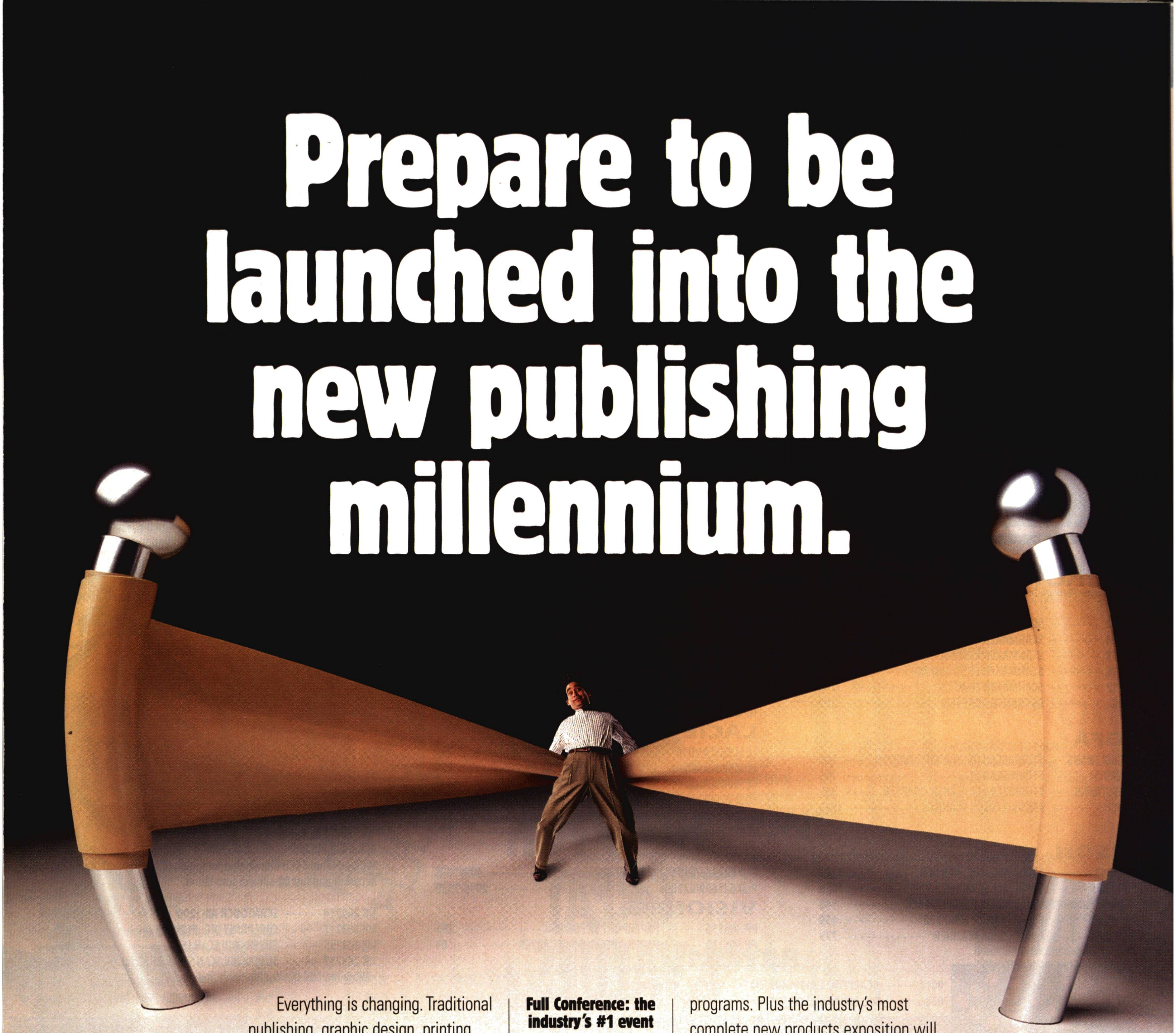
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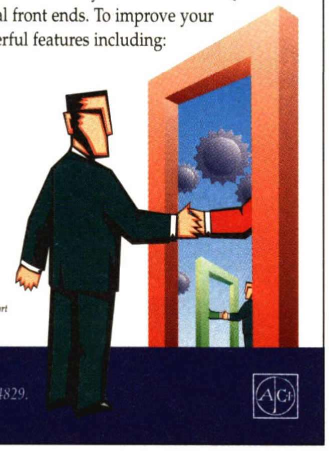

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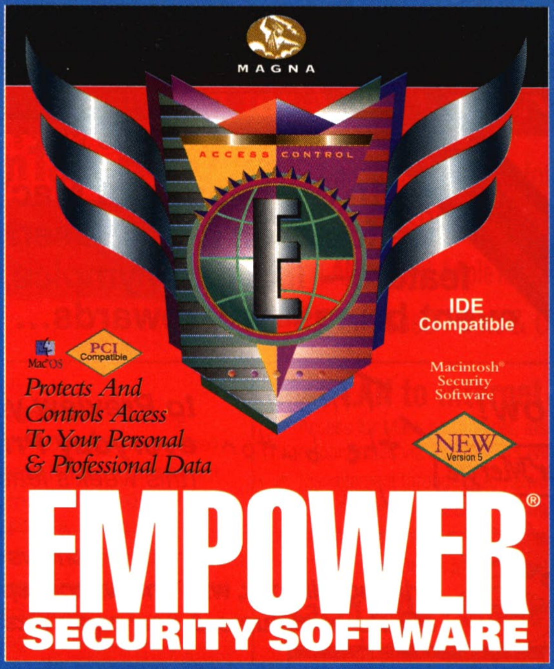
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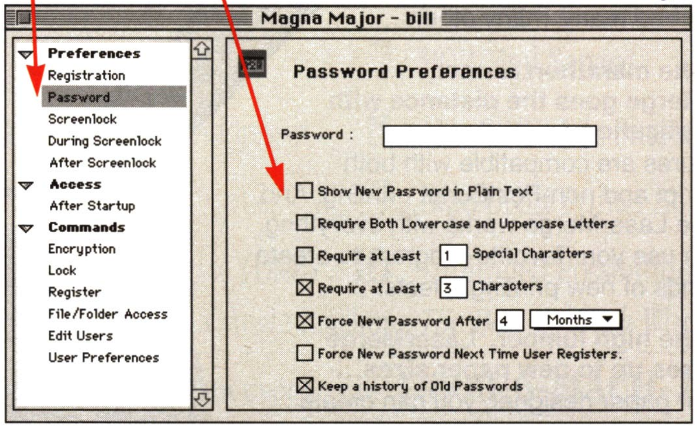
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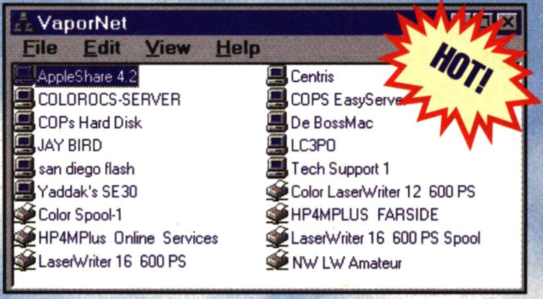
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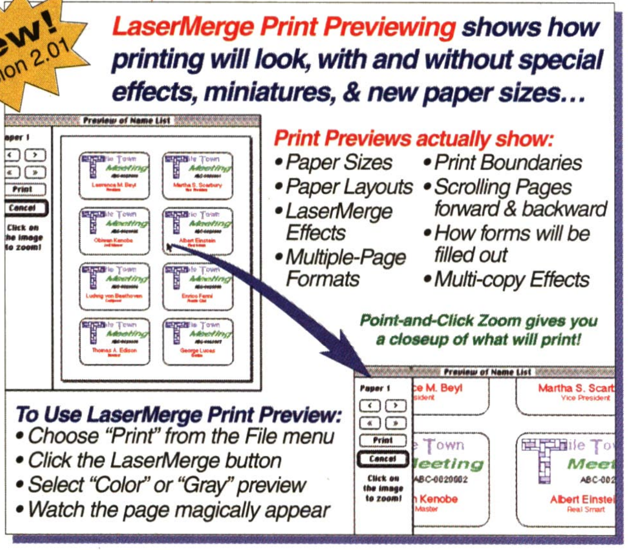

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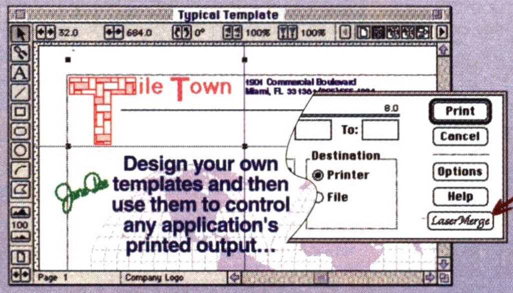

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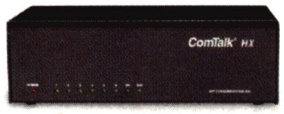

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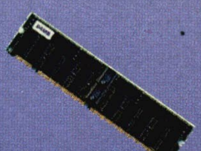

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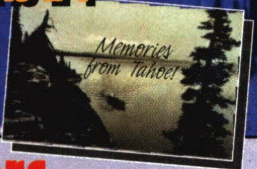

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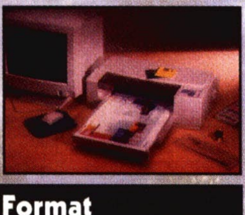

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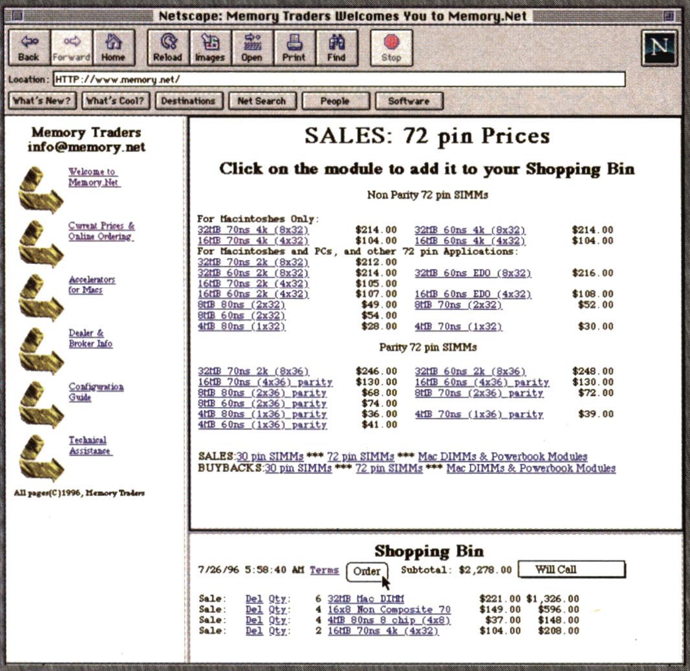
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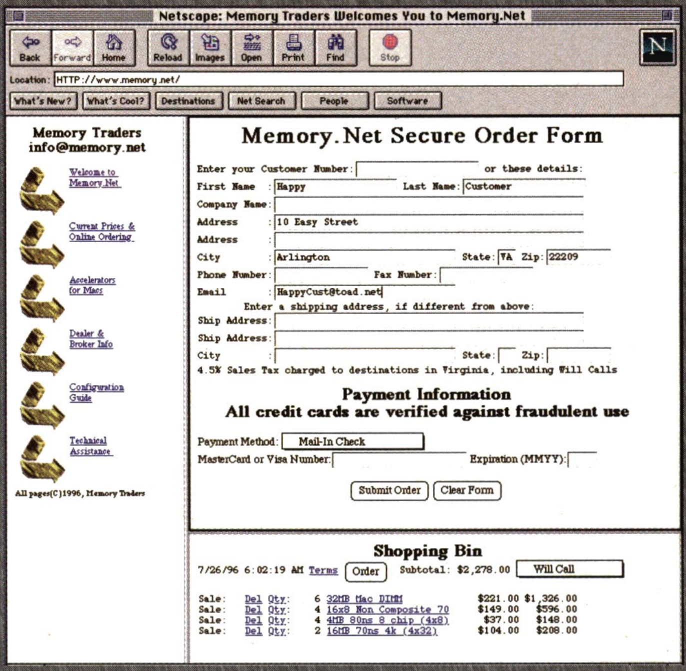
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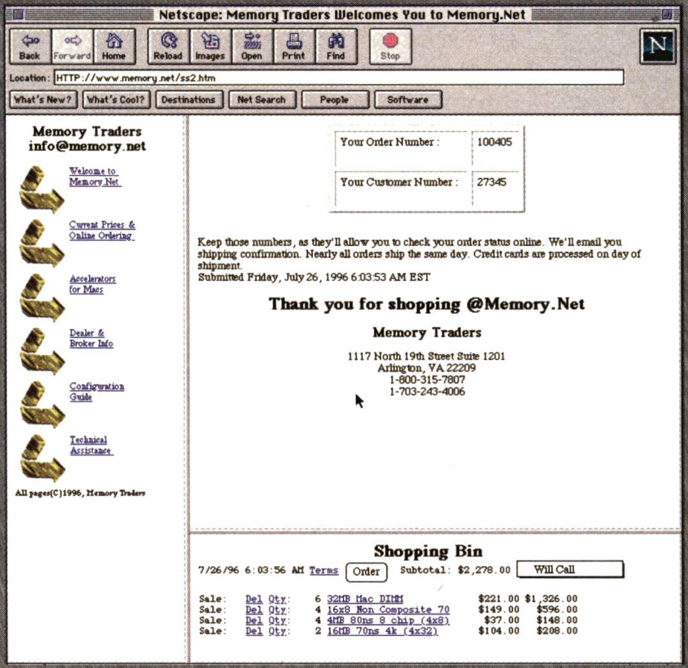
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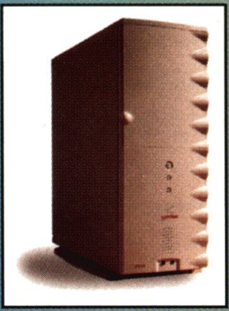

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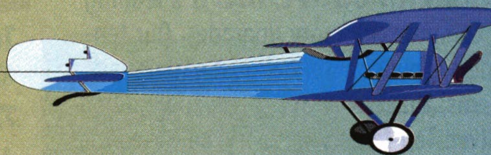

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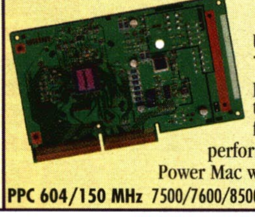

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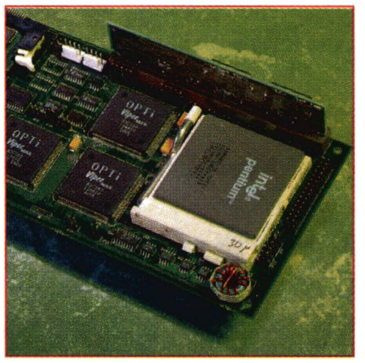

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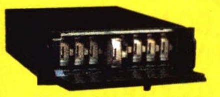

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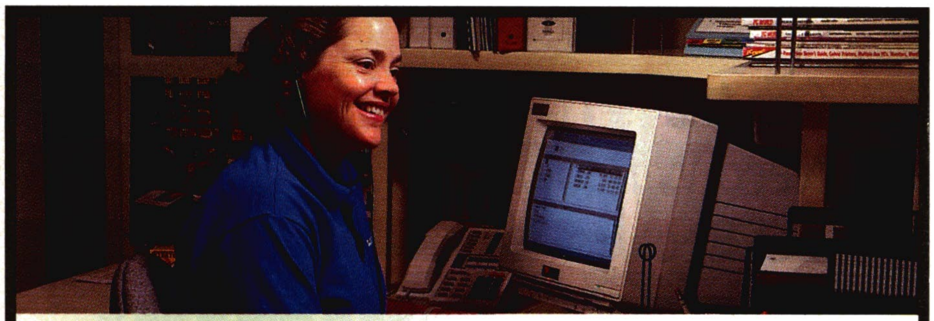

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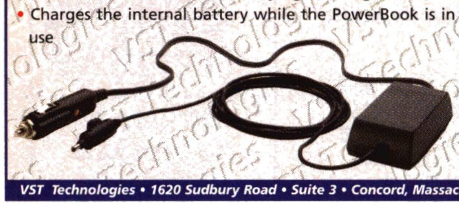

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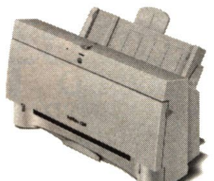

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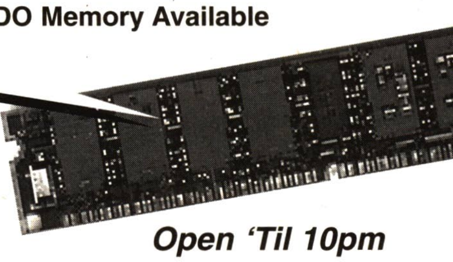

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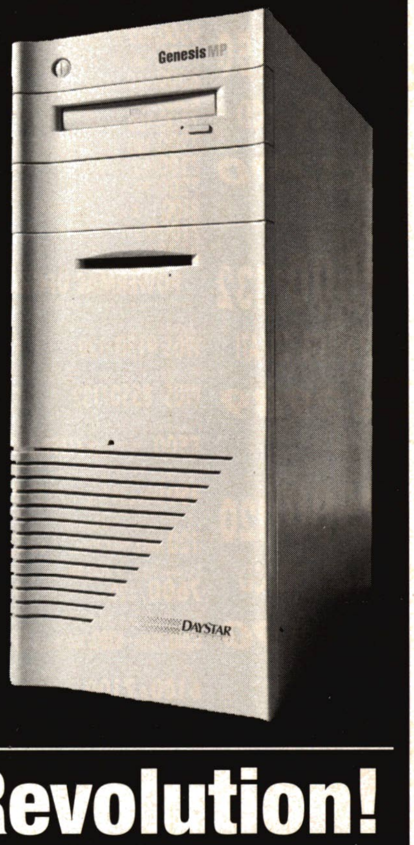

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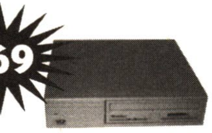
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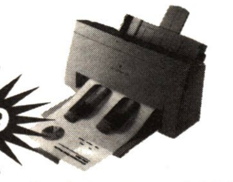
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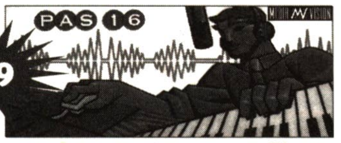

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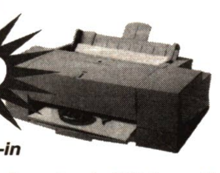
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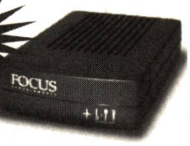

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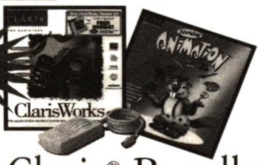

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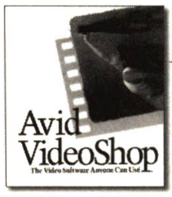

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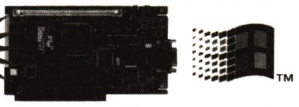
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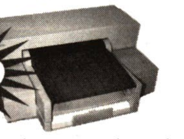
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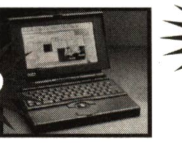
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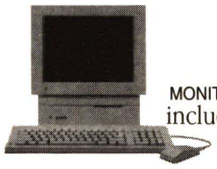

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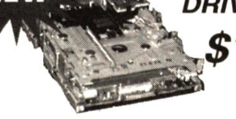
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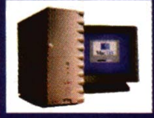

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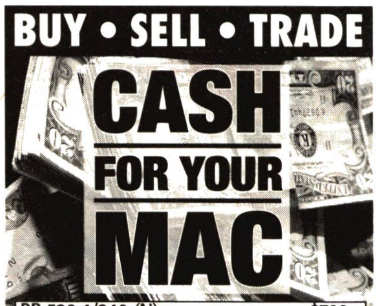

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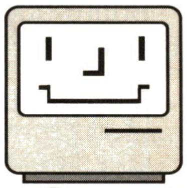

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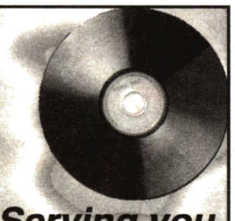

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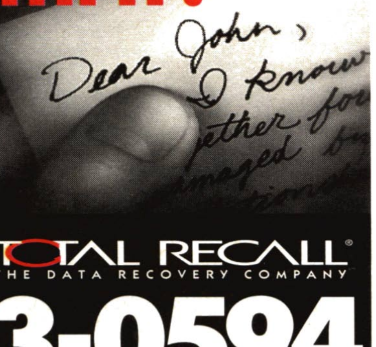

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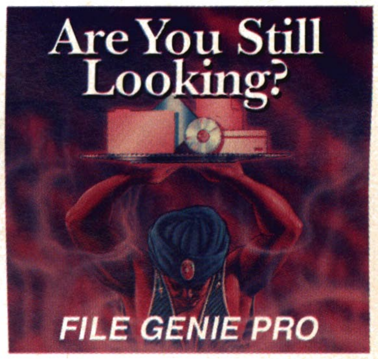

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Apple raising resolution with next color flatbed

By Leander Kahney

Apple in September will reportedly release a new flatbed scanner that offers twice the resolution of its predecessor along with greater color depth.

The Color OneScanner 1200/30 will come with new Xerox OCR software that will let Web producers convert scanned text into HTML.

Sources said the Color OneScanner 1200/30, which will carry an estimated street price of $849, will replace the $629 Color OneScanner 600/27.

While the current model captures nine bits each of RGB information per pixel at an optical resolution of 600 dpi, the 1200/30 will scan 10 bits each of RGB data per pixel in a single pass.

It will feature an optical resolution of 600 by 1,200 dpi, which can be raised to 4,800 by 4,800 dpi through software interpolation, sources said. The scanner will have a SCSI-2 interface.

According to sources, the 1200/30 will ship with a new version, 2.1, of ColorSync, Apple's system-level extensions for color management.

The device will also come bundled with Version 2.0 of Apple's OneScanner Dispatcher, a printing, faxing, copying and archiving utility.

In addition, the scanner will come bundled with Version 3.0 of Xerox Corp.'s TextBridge, an update to the OCR package that can read text and graphics into HTML format.

But unlike the Windows version, TextBridge 3.0 for the Mac, due to ship this week for $99, will not include a built-in HTML editor.

Other bundled software will include Kai's Power Tools 3.0 SE and KPT Convolver 1.0 SE, both from MetaTools Inc., as well as a plug-in module for scanning directly into Adobe Photoshop, according to sources.

After hearing details of the product, analyst Kristy Holch, principal of Info-Trends Research Group Inc. of Plymouth, Mass., expressed surprise at the relatively low price of the scanner.

"The Apple brand name usually allows them to charge a premium," she said.

Apple declined to comment. □

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ATI

From Page 1

624. The company will also sell 2-Mbyte memory-upgrade modules for $99.

"It turns my Mac into the AV studio I wanted but couldn't afford," said beta tester Elizabeth Hill-Allen, a systems consultant in Kingston, N.Y.

The Xclaim VR will make its debut at Boston's Macworld Expo this week, along with an add-on product, the Xclaim TV tuner, and another accelerator board, the Xclaim 3D.

Both the Xclaim VR and 3D will use ATI's 3D RAGE 64-bit graphics accelerator chip and a new synchronous memory technology called SGRAM, which ATI said can provide greater bandwidth than dynamic RAM but at a lower cost.

According to ATI, the Xclaim VR, aimed at the Internet; game; education; and small-office, home-office markets, can give entry-level PCI Macs such as the Performa 5400 the video capabilities of a Power Mac 8500 in addition to speedier 3-D graphics. It will support QuickDraw 3D and its RAVE (Rendering Acceleration Virtual Engine) technology for 3-D graphics acceleration. ATI said the card will produce high-quality graphics up to six times faster than QuickDraw 3D on a Power Mac 9500.

The Xclaim VR will capture video from a variety of sources at up to 30 frames per second at a resolution of 320 by 240, the company said. It will display full-screen, full-motion QuickTime video.

Rick Doherty, director of The Envisioneering Group Inc. in Seaford, N.Y., said the card will bring Mac users "closer to what the PC market enjoys right now" in terms of access to more-powerful gaming, videoconferencing and streaming video over the Internet. But he said the price is still high compared with the PC market.

The Xclaim VR takes the place of the three-in-one Xclaim MM model that had been scheduled to ship in June. ATI said it decided to add 3-D and video-out capabilities while waiting for QuickTime 2.5.

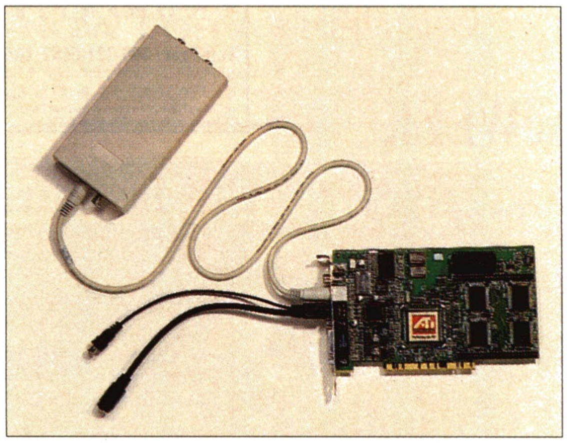
Combined with the Xclaim VR card, the cable-ready UHF-VHF Xclaim TV tuner will capture TV content for use in presentations or on the Web. The $99 tuner will be able to block channels, and a Hot Words feature will open a video window when it finds specified words in closed-caption text.

The $349 4-Mbyte Xclaim 3D accelerator will target multimedia-content authors who want to add 3-D elements to their work. The Xclaim 3D will replace ATI's $299 2-Mbyte Xclaim GA board. The new device will support resolutions up to 1,152 by 870 in 24-bit mode and 1,600 by 1,200 in thousands-of-colors mode at a refresh rate of 75 Hz.

The company will offer 2- and 4-Mbyte memory upgrades for $99 and $179, respectively; an 8-Mbyte card will cost $499.

The Xclaim 3D will deliver the same video-scaling and 3-D capabilities as the VR board. The 3-D board will run six times faster than an unaccelerated Power Mac 9500 using QuickDraw 3D, ATI said.

ATI Technologies Inc. of Thornhill, Ontario, is at (905) 882-2600; fax (905) 882-2620; http://www.atitech.ca. □



The Xclaim VR PCI card will offer QuickDraw 2-D and 3-D acceleration and QuickTime movie capture and playback.

Miro to tap into FireWire bus

By Connie Guglielmo

Miro Computer Products Inc. is seeking to fast-forward itself to the top of the digital video market with new technology, a price cut, and strategic partnerships with Power Computing Corp. and Skipstone Inc.

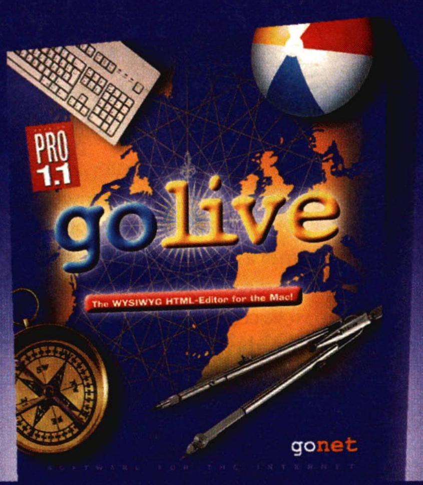
Miro and Skipstone, an Austin, Texas-based developer of IEEE 1394, or FireWire, technology, recently unveiled a joint development and distribution agreement to create a new digital video-editing board based on the high-speed bus. The new product will cost less than $1,000 and ship by year-end.

Via a Digital Video (DV) compressor-decompressor licensed to Miro from Sony Corp., the board will let users capture DV-format video from any 1394-compatible camcorder directly to a hard drive, the companies said. Miro also announced that Power of Round Rock, Texas, has chosen its miroMotion DC20 video-capture and -editing board as the built-in video system for all audiovisual versions of Power's Mac clones.

In addition, Miro cut the price of the DC20 to $799 from $999 and is offering new drivers for the Mac designed to improve overall performance. Current DC20 users can download the new drivers free after Aug. 1 from the company's Web site.

The DC20 offers 640-by-480-pixel, 30-frames-per-second video capture and plays back 25 to 30 fps in 16-bit color. It features on-board Motion-JPEG compression and lets users export full-screen, full-motion video in VHS, S-VHS, Hi-8 and Video8 formats (see 04.22.96, Page 23).

Miro Computer Products Inc. of Palo Alto, Calif., is at (415) 855-0955 or (800) 474-6476; fax (415) 855-9004; fax-back (415) 855-9494; info@miro.mirousa.com; http://www.miro.com. □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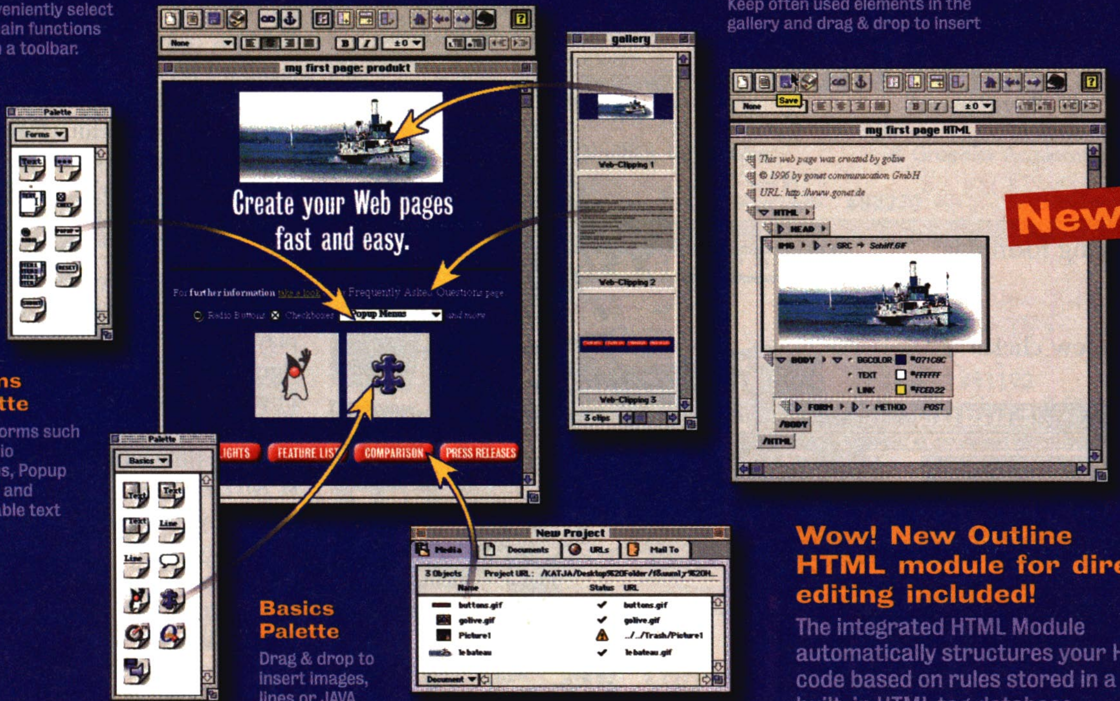
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SOFTWARE FOR THE INTERNET

PowerExpress

From Page 1

at 250 MHz, and a 280-MHz chip will power a six-slot, seven-bay tower chassis called K2. Multiprocessor models will be costlier variations on both the midrange and high-end designs, sources said.

While prices for the series will reportedly remain in the $2,500 to $5,000 range, the company is aiming higher as well. Sources said the fastest multi-CPU PowerExpress machines may cost up to $8,000 when equipped with Apple's forthcoming multimedia add-ons.

PowerExpress will follow an interim round of faster Macs, code-named Montana and also known as Power Mac Pro, sources said. Originally planned for November, the Montana line is expected to ship in January or February with speeds ranging from 160 to 225 MHz; that line will reportedly replace the systems introduced this week. The top Montana model will also use the easier-to-access K2 tower chassis (see 05.13.96, Page 1).

Neither of the new Mac lines planned for the first half of 1997 will be based on the multivendor PowerPC Platform (PPCP) specification, sources said. The product plans of Apple's Alternative Platforms Division, which is now responsible for the company's PPCP efforts, are not known.

According to sources, the CPU clock rates for the fastest PowerExpress machine will depend at least partially on chip availability. Sources said the company is resigned to having clone makers bring faster CPUs to market first, since the larger PowerPC volumes Apple requires prevent its early adoption of the speediest chips. However, the upcoming PowerExpress line will reportedly continue Apple's use of a processor daughtercard, which will allow flexibility in choosing clock rates based on CPU availability.

Sources said a key feature of the PowerExpress line will be new audiovisual options centering on digital video. Apple is reportedly developing two new AV cards that may be offered with PowerExpress systems. The professional version of the card will include 3-D acceleration. In addition, the June 1997 Macs will have improved onboard sound capture and playback features.

The PowerExpress design will tweak virtually every hardware subsystem in the current PCI Mac design, but one of the bigger I/O changes will be optional. With these machines, Apple will introduce its own PCI card that implements the IEEE 1394, or FireWire, standard. Expected to provide data transfer rates up to 50 Mbytes per second, the FireWire card will link the Mac to digital video decks, digital camcorders and other Macs. Apple will be showing 1394 cards from third-party developers at this week's Macworld Expo in Boston.

The forthcoming PowerExpress models will have 16 or 32 Mbytes of RAM, and Apple will move to an EDO (Extended Data Out) RAM architecture to improve the delivery of data to the CPU; EDO RAM is commonly used in newer Intel-standard PC systems. Sources said the new machines will also sport a faster, 512-Kbyte Level 2 cache architecture that will be housed on the CPU daughtercard rather than on the motherboard, as it is today.

The PCI bus itself will reportedly be improved on these new Macs for high-bandwidth uses through a new PCI bridge chip. Likewise, the built-in graphics display circuitry in the PowerExpress will be significantly faster than in the current Power Mac 7600 and 8500 models.

The two SCSI buses of the PowerExpress line will be upgraded to Fast SCSI-2 externally and Fast Ultra SCSI-3 internally, sources said. Rated at a maximum throughput of 20 Mbytes per second, Fast Ultra SCSI-3 requires shorter lengths of higher-quality cabling, making it unsuitable for external connections to peripheral devices such as scanners.

The minimum internal hard disk on the PowerExpress line will reportedly be 2 Gbytes, with 3 Gbytes and 4 Gbytes standard for midrange and high-end models, respectively. The new boxes will also include an internal IDE (Integrated Drive Electronics) interface for slower, less expensive storage devices.

Apple is still mulling over how and when to integrate DVD (Digital Video Disc) drives into the Mac line; sources said some configurations of the midrange and top-speed PowerExpress models will include DVD drives for the 4.7-Gbyte disc standard, but the slowest machine will come with the now-standard 8x CD-ROM.

Apple declined to comment. ☐

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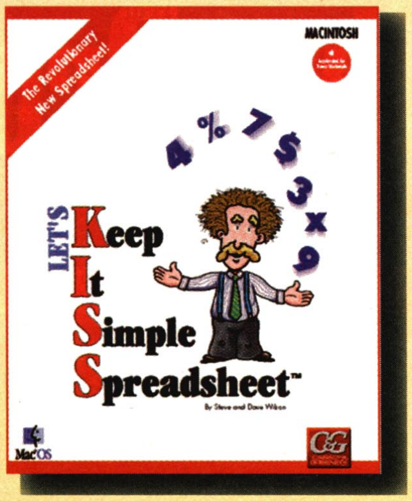
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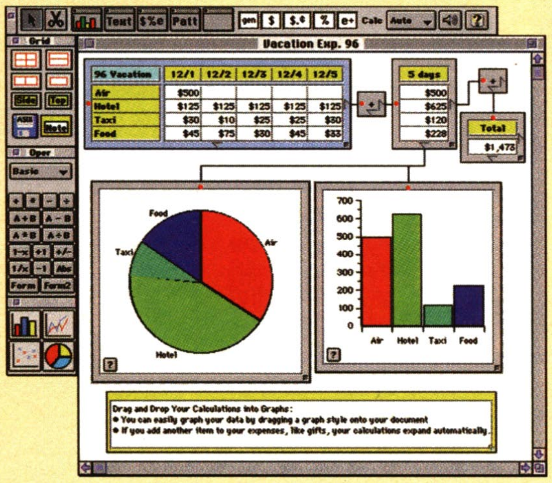

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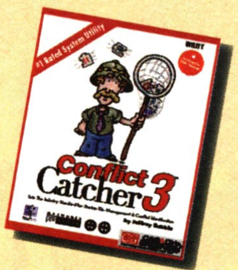

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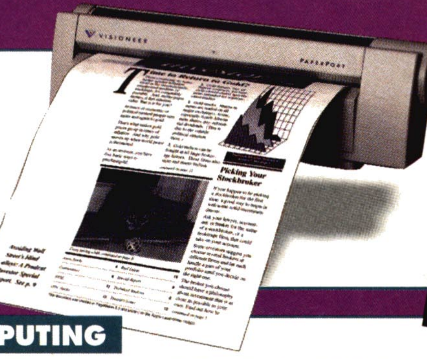
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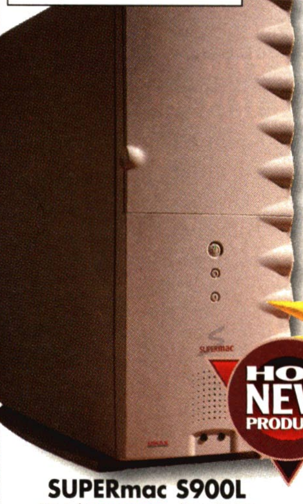

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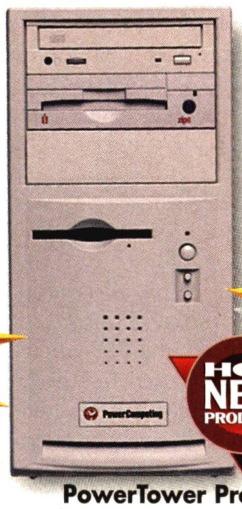

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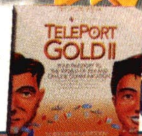
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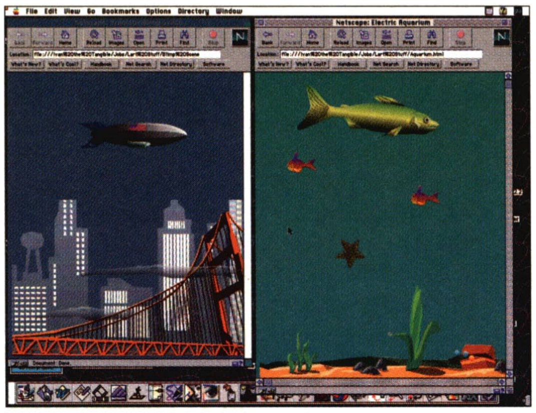
Apple opens GX engine; Lari takes it to the Web

By James Staten

QuickDraw GX may soon get a new lease on life thanks to persistent lobbying by third-party developers.

Apple this week will announce at Macworld Expo that it has split the GX graphics engine from its printing architecture and will distribute it to developers as a static link library. Several developers, including Lari Software Inc. and PaceWorks Inc., said they will incorporate the engine into their products.

Lari and several other partners this week expect to jointly release Electrifier, a free Web browser plug-in that puts the library into use. Thanks to the efficiency of GX, the plug-in will let Webmasters publish highly detailed 24-bit vector graphics and animation files that are much smaller than similar eight-bit GIF images, Lari said.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Electrifier, a new Web browser plug-in, will let Mac users experience high-quality GX images without having to install the extension.

Lari currently distributes Vertigo, a free browser plug-in that delivers GX images but requires users to have GX installed.

Digerati Multimedia Inc. of Santa Cruz, Calif., said it will incorporate the library into MovieEclipse, its $429 GX video-editing package, shipping this week. Stefan Youngs, Digerati president, said developers had been pushing Apple to unbundle the graphics engine for more than a year.

The GX graphics engine will be built into Mac OS 8, which will greatly increase its viability, yet it remains a Mac-only technology — a major hindrance to its adoption on the Internet, according to analysts.

Phac Le Tuan, vice president of engineering at PaceWorks of Palo Alto, Calif., said the Electrifier partners are not concerned that GX is Mac-only. PaceWorks will incorporate the library into its animation tool, Dancer, due by year-end. "We are looking to make Electrifier cross-platform," Tuan said. "We believe this is a great opportunity for Apple to become the leader in high-end graphics on the Web."

Apple is committed to helping developers deploy the GX technology on Windows, according to Frankie Fu, Apple GX evangelist, but, he said, "We just don't have the resources to do it ourselves."

The Electrifier plug-in will be available at http://www.electrifier.com. □

PowerPC

From Page 1

ics Division of East Fishkill, N.Y. G3-series processors, they said, will eventually deliver roughly twice the performance of today's PowerPC 604e.

The second new series, called G4, is based on an all-new internal chip design and should start reaching users in 1999. The third initiative, called Project 2K, is still being defined, but current timetables call for delivery by 2001.

Each of the new series will include several processors aimed at different market segments. That represents a shift from the current PowerPC lineup, where the 603 family was developed specifically for entry-level and portable systems, while the 604 family was built only for higher-end desktops.

G3 is based on the same core design as the current PowerPC 603e and 604e, but improvements to the manufacturing process, cache and bus enhancements, and additional tuning to match software requirements will dramatically boost speed, the companies said.

G3's clock rates are expected to start above 200 MHz and rise as high as 400 MHz. The 603e and 604e have already broken the 200-MHz barrier and are due to reach 300 MHz by the end of 1997, if not before, but their designs probably can't be pushed much beyond that point, officials said.

Initial G3 processors will be manufactured in a 0.35-micron process that is already used for the latest versions of the 603e and 604e. Later G3 versions will be based on a 0.25-micron process, and ultimately the G3 may include up to 30 million transistors, compared to 5.1 million on the 604e and 2.6 million on the 603e.

Unlike current PowerPC implementations, the G3 will have an on-board Level 2 cache controller and a dedicated interface to external caches. The new interface will be separate from the system bus, which connects the CPU to main memory and the rest of the logic board. The design will give the processor faster access to cached data and instructions, since the cache bus can run at higher speeds than are feasible for the larger and more complex system bus.

The companies said they are also working on an improved system-bus design. While it won't be incorporated in the first G3 processors, it should appear in later implementations. In addition, the G3 design will incorporate a variety of other optimizations developed after tracing and analyzing the behavior of actual Mac OS and Windows NT software.

The G4 will contain a new microarchitecture, the chip partners said, developed with a more-advanced design methodology than the G3 or current PowerPCs. It will offer 100 percent compatibility with software written for its predecessors, according to both companies.

Initial G4 implementations will be manufactured in a 0.25-micron process; later, it will be moved to a 0.18-micron process. Eventually, the chip could have up to 50 million transistors and run at speeds approaching 500 MHz.

As for Project 2K, officials said only that its architects have been urged to "take a clean-sheet-of-paper approach" in searching for radical advances.

Analysts said the plan suggested that the PowerPC partners would remain locked in a tight race with Intel Corp.

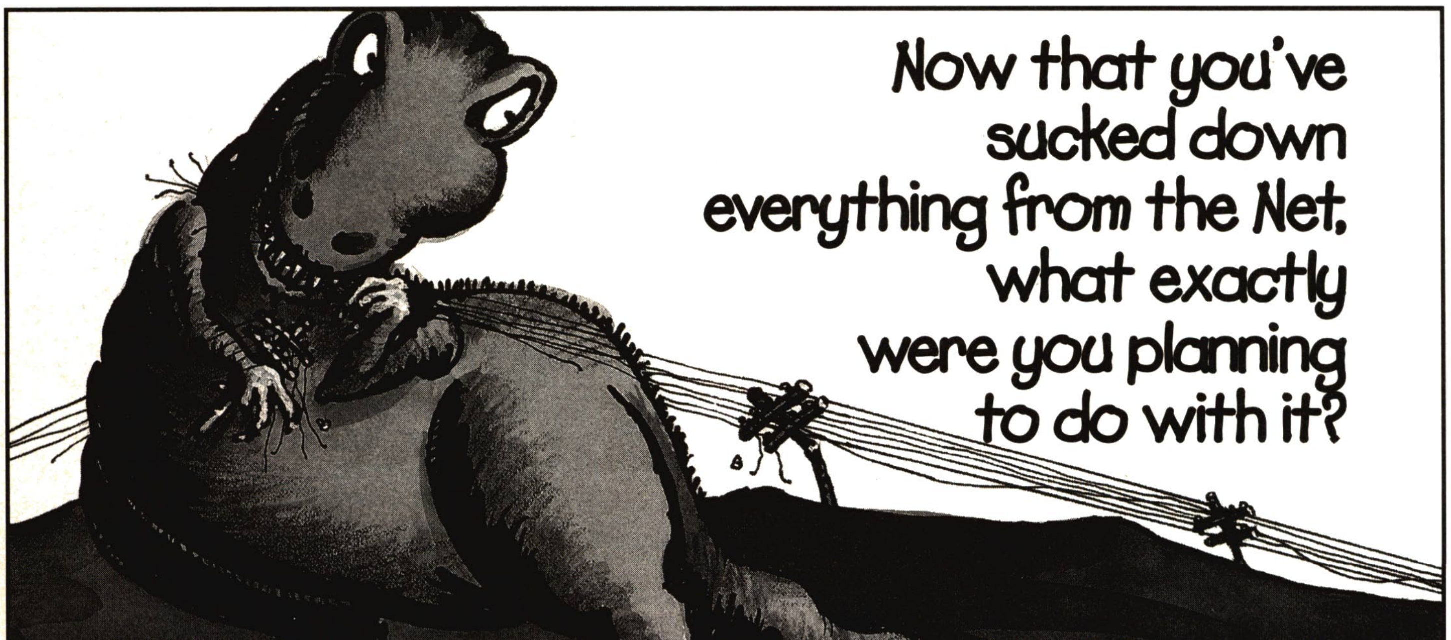
"Right now the 604e is very competitive with — even a little ahead of — anything Intel has to offer," said Michael Slater, publisher and editorial director of the Sebastopol, Calif.-based Microprocessor Report. "The G3 might improve the PowerPC's relative performance position modestly, but it won't fundamentally change the competitive situation."

Conspicuously missing from the road map is any direct response to MMX, the multimedia and image-processing instructions Intel will add to its Pentium processors starting late this year.

IBM and Motorola officials said they are confident that PowerPC-based systems will out-perform their Pentium-equipped rivals in most new media and graphics applications. They conceded, however, that MMX might narrow the gap or even give Intel the lead in some areas and that, at a minimum, it will pose a marketing challenge.

"Whipping up some new instructions is not the way to address a marketing problem," said Stan Tims, group marketing manager for Motorola's RISC Microprocessor Division. "But we know we need an answer, and we haven't been sitting on our hands."

He said several task forces, with representatives from Apple as well as the chip makers, are studying the MMX issue, and a new initiative could be forthcoming before year-end. Options, according to Tims, include increased support for multimedia-acceleration hardware from third-party developers, the creation of specialized processors and fundamental changes in future versions of the PowerPC architecture itself. □



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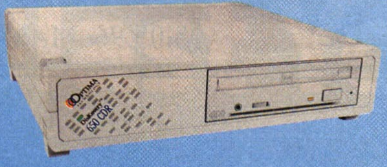

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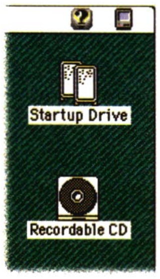

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Speed

From Page 1

604e can initiate four instructions in the processor for every clock cycle, while the 603e initiates two instructions each cycle, Ryan said. That makes the PowerPC 604e a technically more-advanced chip than the PowerPC 603e, according to Jim Turley, senior editor at Microprocessor Report of Sebastopol, Calif.

"With the 604e, they've actually reworked the ALU — the arithmetic logic unit — which cracks and executes PowerPC instructions," he said.

The CPU differences don't stop there. The 604e has two 32-Kbyte caches — one each for data and instructions — but the 603e's are half that size, said Will Swearingen, manager of product marketing for Motorola's Austin, Texas-based RISC Microprocessor Division. Like the 603e, the older PowerPC 604 has two 16-Kbyte caches, which is why that chip is being replaced in high-powered desktop systems by the faster 604e. Ryan noted that the 604e is also better designed for multiprocessing.

Although Apple's current Power Macintosh line includes PowerPC 601, 604 and 604e processors, and the Performa line has 601, 603 and 603e chips, the company is working to align its products to the 603e and 604e families, said Ross Ely, Apple Power Mac product line manager.

"We've always tried to say that the 603 is for portables and the low-end, while the 604 is for performance workstations," Ely said. However, that broad distinction will not be enough to guide buyers, observers said.

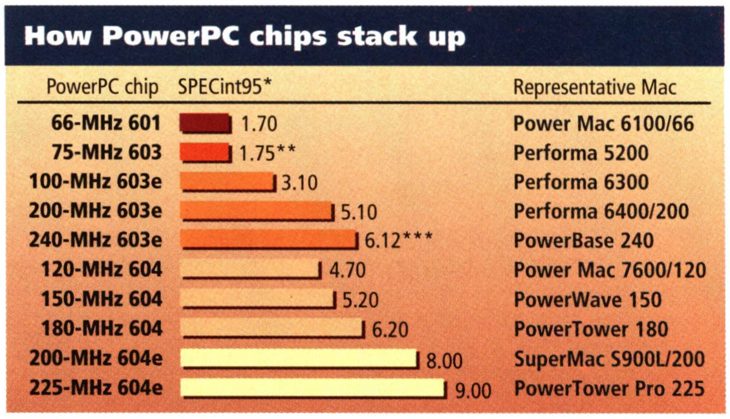
"Apple and other companies have a real marketing or branding issue ahead of them: Getting customers to understand what the megahertz means," Turley said. Companies have a responsibility to clarify the real-world speeds of different chips running at the same clock rate, he said, because most computer salespeople are not going to spend time explaining the difference.

Jon Fitch, vice president of engineering for Power Computing Corp. of Round Rock, Texas, said, "For a nontechnical consumer, just about all you can do is look at the benchmarks."

Ely said Apple plans to communicate each Mac system's actual speed by using the processor score from the MacBench utility. "We're trying not to rely on megahertz as much as the MacBench processor rating," Ely said. (MacBench was developed by Ziff-Davis Benchmark Operation, a division of the company that publishes MacWEEK.)

Cross-platform comparisons get even trickier. While the PowerPC 603e is rightly compared to Intel Corp.'s Pentium, Turley said, the 604e is not really comparable to Intel's Pentium Pro.

"The Pro is a step backwards for the vast majority of customers," Turley said, noting that the chip is designed for servers and workstations rather than desktop PCs running productivity software. □



*An industry benchmark measuring raw processor speed. The speeds achieved by systems using processors may vary. Where a rating was provided as a range, the higher number is listed. **IBM Corp.'s scaled estimate. ***Power Computing Corp.'s scaled estimate.

NEWSMAKER

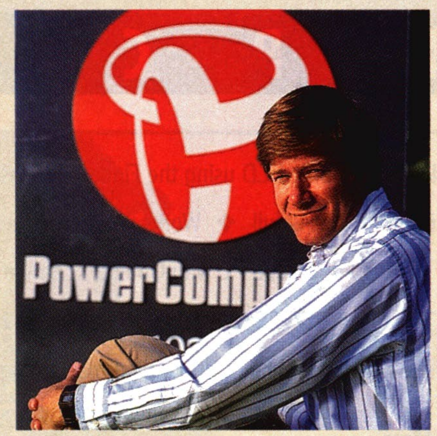
Power's Fitch on CPU speed traps

Following the late-July rollout of the fastest Mac OS model on the market, Jon Fitch, Power Computing Corp. vice president of engineering, offered MacWEEK a behind-the-scenes glimpse into the design of the PowerTower Pro and the clone market.

A 15-year veteran of Apple hardware teams, the 41-year-old Fitch came to Power in 1995 and works in the company's design center in Cupertino, Calif.

"While you might think we don't do any engineering over here because we just take an Apple design and implement it, actually we may be solving the tougher parts," Fitch said.

According to Fitch, the quest for speed leads to tough engineering challenges. The faster systems are more sensitive to heat, line noise, ground bounce and small differences between the pieces in a batch of parts.



ED CALDWELL

Jon Fitch, Power Computing VP of engineering

"A lot of us thought we left analog engineering back behind us in the '50s, or the '60s at least," he said.

CPU developers must also account for differences in the manufacturing of parts that are used to build a computer logic board. According to Fitch, supposedly identical parts from different vendors can function differently when used in a system.

"Parts from different vendors are often tested under artificial conditions, conditions that actually don't approximate the system," he said. "And you may find that those two parts behave very differently when they're put into a physical system that has a lot of physical problems.

"On some of the faster systems we have had to solve heat problems, because the faster you run the more the CPU heats up," Fitch said. "There's a brute-force approach, which is to put [a] massive heat sink and huge fans. Both of those things are expensive and may not necessarily solve the problem to begin with."

In addition, small differences in speed between logical components can also lead to slowdowns or random crashes, he said.

"When you're mass-producing something, it has to tolerate a lot of different sources of variability: voltage, temperature, power-supply jitter, frequency jitter, tolerance between components," he said. "One [part] may be very slow and one very fast, [but] they're put on the same board. Maybe if both of them were very fast it would work, or if both of them were very slow it would work."

Fitch said the increased clock speeds can also reveal code "esoterica" — speed-dependent coding in system firmware and software. One recent example with the PowerTower Pro was the failure of the Mac floppy driver when the PowerPC 604e speeds climbed above 200 MHz.

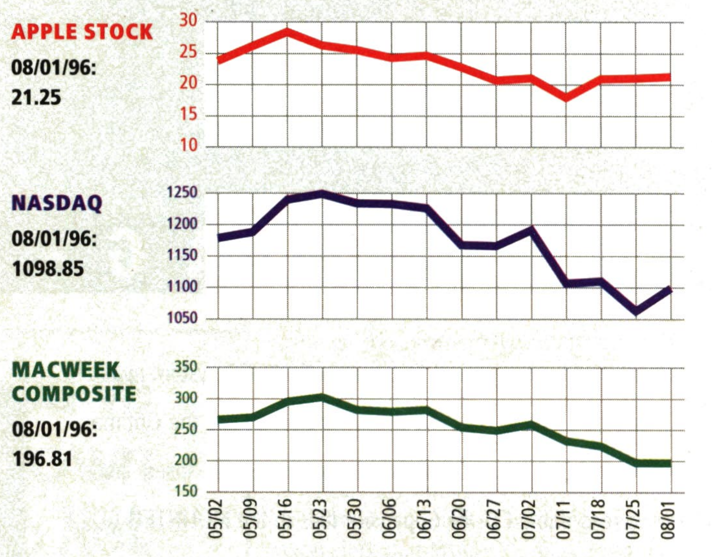
"There are probably more of these [latent bugs] lurking, not just in the Mac OS but in Windows and every other program around," he said. "There was a timing dependence that was well-satisfied by code execution times in slower systems, and suddenly we get fast enough to run across this."

Fitch said clone vendors can respond more quickly than Apple to solve some engineering problems. "Apple would love to solve these problems," he said. "Some of the solutions are not available to them because of the business and manufacturing models they have. … They have to have more tolerance because they need a wider selection of vendors. They need more parts. Their manufacturing process is driven by the idea that all the parts are good and the same when they come in the door."

Fitch also said the smaller clone companies are more motivated than Apple to fix cutting-edge problems: "We, in a sense, have nothing else to do but look at these problems and fix them."

— *By David Morgenstern*

StockWatch



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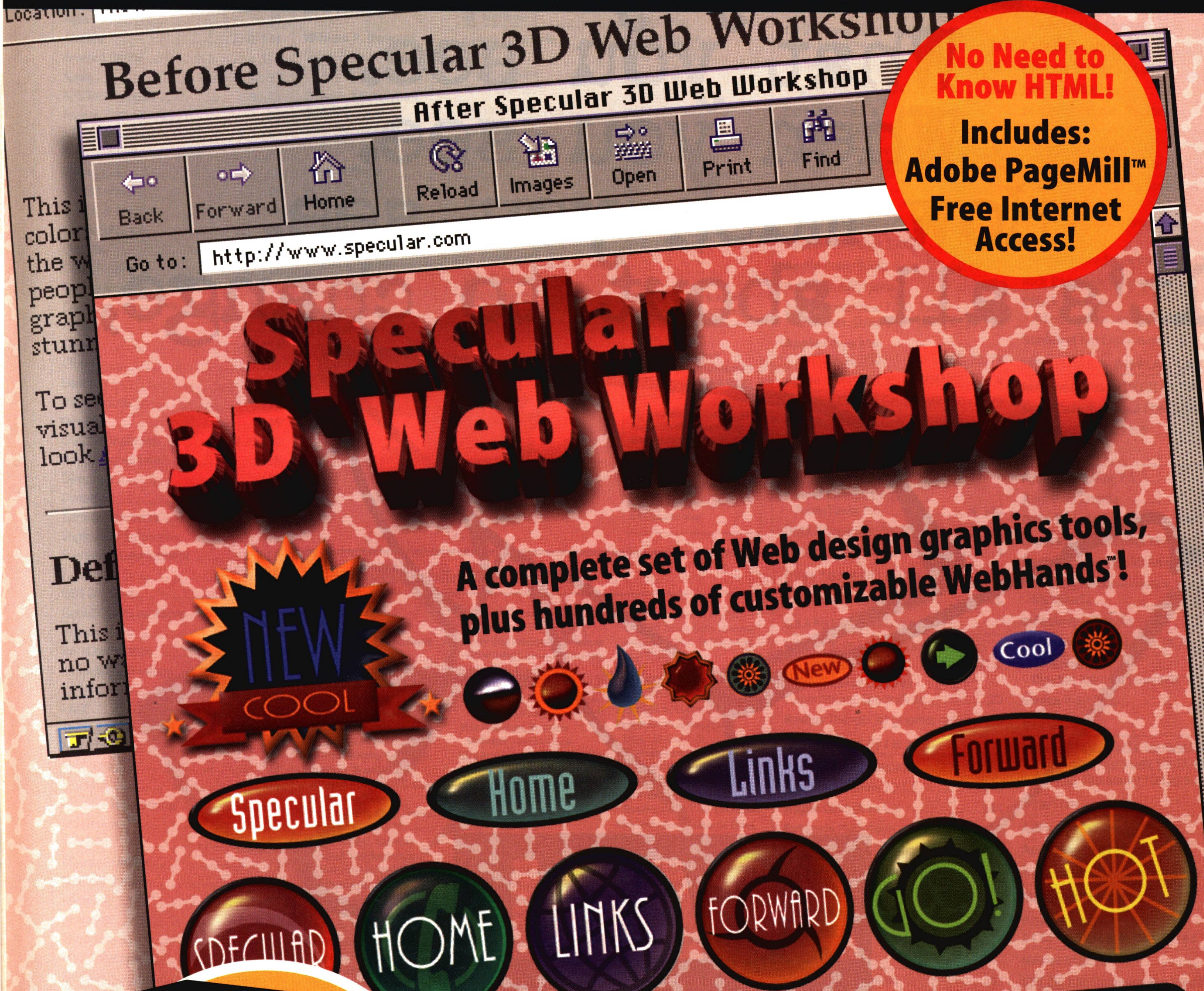

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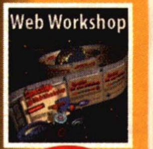

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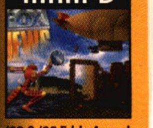

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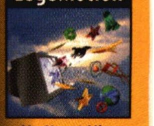

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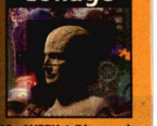

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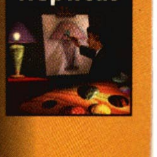

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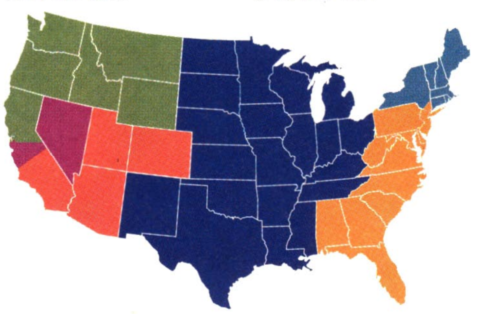

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Welcome to the pleasure dome

The Knife is working himself into a gentle lather this week in preparation for the Mac community's sweaty group hug in Boston.

Like most veterans of recovery groups, halfway houses or penal institutions, he finds the trappings of Macworld Expo at once bone-crushing and reassuringly familiar. And like those hearty survivors, he finds it essential to look beyond the moment to a brighter tomorrow.

As he circles the floor of the sweltering World Trade Center in an unconscious parody of the exercise-yard scene in "Midnight Express," the Knife will envision the cool, clean expanses of Mariani One, a k a Apple's design workshop. There, among shining pedestals of pure crystalline sculpting foam, dulcet-voiced ID sylphs are even now shaping Apple's future Macs.

Of course, journalistic ethics compel the Knife to point out that they are also offering free tours of the facility, which will soon be up for lease. No lesser figure than Bill Gates and nine of his toadies have queued up for a real-estate tour of Mariani One, which includes a sashay through the Mac prototypes.

On Gossamer wings

Before Bill & Co. can take advantage of any innovations they may see on their magical mystery tour, the Knife finds himself duty-bound to reveal some of the fruits of this garden of earthly delights.

Take the company's next contender for the low end of the Power Mac line. Dubbed the Power Mac 7300 and running on a 160-MHz 604e chip, the new model is poised to kick the tar out of that woebegone 601 holdout, the 7200.

But even the super-savory 7300 pales in comparison to the zesty tang of Apple's June crop of Performa-class Macs. Code-named Gossamer, the new machines will comprise three squat models and one minitower.

The Gossamer series will start at $1,500; most of the piquant little devils will pack 603e chips running at 220 to 260 MHz, although one extra-spicy flavor will come with a 240-MHz 604e. The machines will include 2- to 4-Gbyte IDE drives, and adventurous souls will be able to upgrade them to the PowerPC Platform.

Is that a Shiner in your pocket?

But back to the tawdry realities of the here and now: According to the Unix in Apple's harem, the company will be holding court at the expo from a private PowerPC pleasure dome.

Those Kublai Khans who pass muster with Apple's doormen will get their hands on new servers designed to ease the pressures on harried IS managers everywhere. The accommodating new machines, dubbed Shiner Pro, reportedly run at 200 MHz and come equipped with big hard disks and fast CD-ROM drives.

Bring lots of quarters

Of course, not everyone can gain entrance to Apple's sanctum sanctorum. But even the simplest schlub will be able to shake hands with new technology, thanks to a deal penned by Bandai and those genial folks who run the world's Holiday Inns.

According to the Knife's favorite night manager, Bandai has made reservations for 100 Pippins to be placed in individual rooms of an unnamed Holiday Inn; two of the gregarious little boxes will also take up residence in the hotel lobby. The Knife applauds the idea, as long as the room's magic-fingers bed can be used as an alternative input device.

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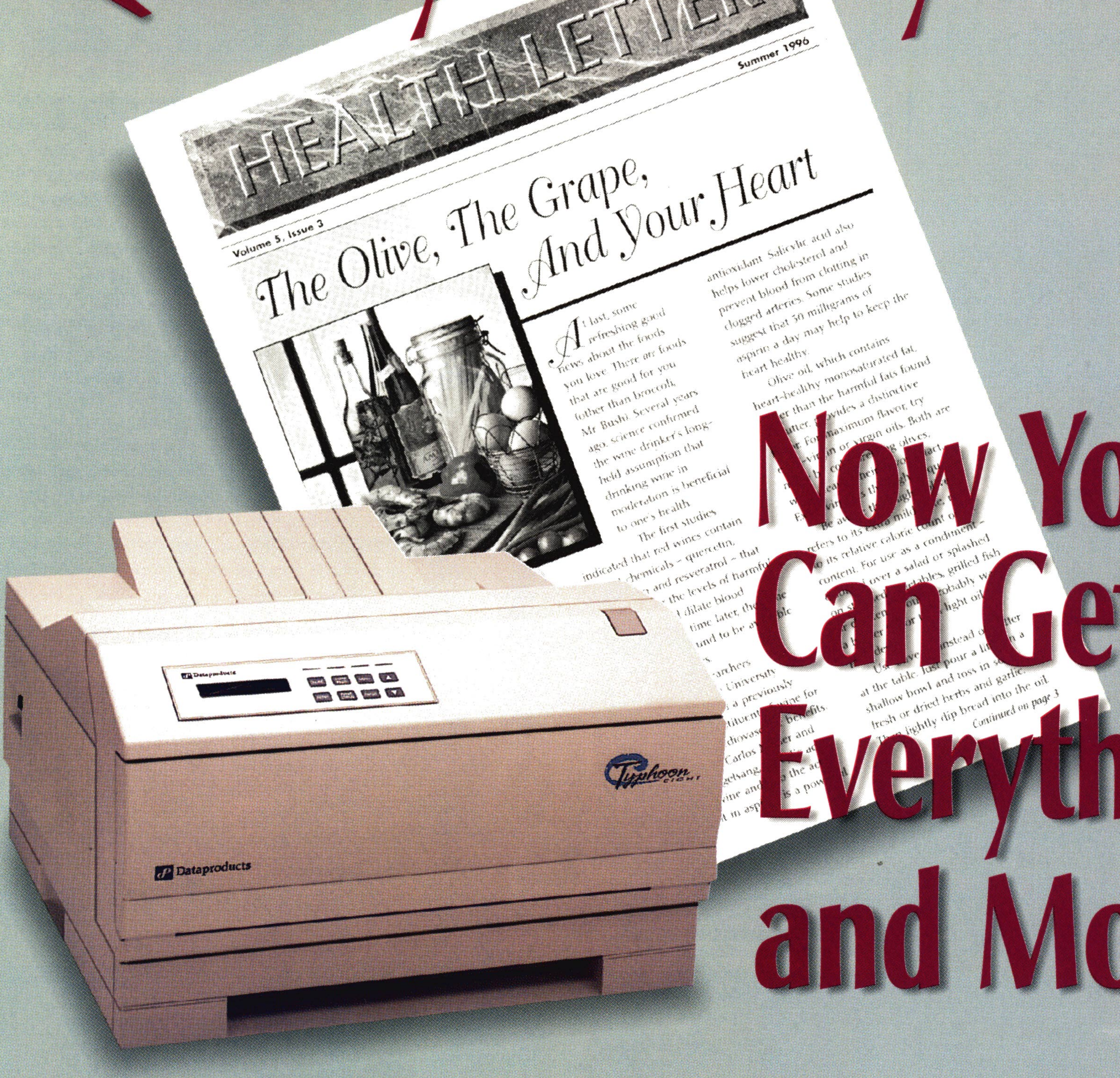
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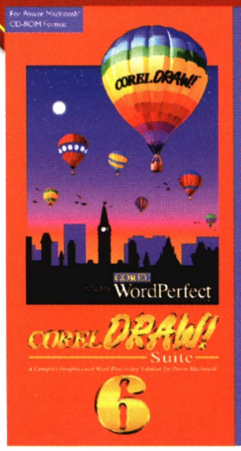

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